Proj. No.: RA 140 DESIGN, BUILD, COMPLETE AND MAINTAIN SHEIKH JABER AL-AHMAD AL-SABAH CAUSEWAY PROJECT (MAIN LINK)  Engineer's Representative:  Contractor:  Date  Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference  Request No.  RA140-HDC-22-CBR-DRW-0063-01  RA140-HDC-22-CBR-DRW-0063-01  Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference  Rev.  Description  Copies
STATE OF KUWAIT MINISTRY OF PUBLIC WORKS  Engineer's Representative:  Contractor:  Date  HYUNDAL  Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference Rev.  State of Kuwait MINISTRY OF PUBLIC WORKS  TRA140-HDC-22-CBR-DRW-0063-01  RA140-HDC-22-CBR-DRW-0063-01  RA140-HDC-22-CBR-DRW-0063-01  Contractor:  Date  16/01/2016  15 FED 2016  RA140-HDC-22-CBR-DRW-0063-01  RA140-HDC-22-CBR-DRW-0063-01  Contractor:  Date  16/01/2016  15 FED 2016  RA140-ROBER ALL-AHMAD ALL-SHAWAIT  MINISTRY OF PUBLIC WORKS  PRW-0063-01  RA140-HDC-22-CBR-DRW-0063-01  RA140-HDC-22-RBW-0063-01  RA140-HDC-22-RBW-0063-0
Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  Item Reference Rev.  Date  16/01/2016
Contractor:    Contractor:   Date
Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  1. Submittal Details  Item Reference Rev. Description  Copies  PA140-22-BRG-CW-DW-  Shuwaikh Port Interchange P(72) - P(A0) General Concrete
Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference Rev. Description Copies  PA140-22-RRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
Transmittal of Design Drawing  1. Subject Description  Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
Detailed Design - Shuwaikh Port Interchange P(72) - P(A0)  General, Concrete Outline & Longitudinal Prestressing - Drawing Package  2. Submittal Details  Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
2. Submittal Details  Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
2. Submittal Details  Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete  Shuwaikh Port Interchange P(72) - P(A0) General Concrete
Item Reference Rev. Description Copies  RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete  Shuwaikh Port Interchange P(72) - P(A0) General Concrete
RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete (10) 11/12/13
RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete (10) 11/12/13
RA140-22-BRG-CW-DW- Shuwaikh Port Interchange P(72) - P(A0) General Concrete
22300 B1 Outline & Longitudinal Prestressing - Drawing Package RECEIVED
(1) 22 tan 200
2.3 JAN 2013
Note: - Including Comment & Response Sheets  Par Al Handasah
- Including Contrient & Response Sheets - Including SYSTRA & HDEC-CGCC Quality Control & Quality Assurance Checklist
00/25/2017
These are transmitted for:
☐ Your information ☐ Approval ☐ Checking ☐ Review and Comment
Tour information Approval Criecking Neview and Comment
We certify that the above drawings have been designed by Systra and consented by AECOM
Submitted by: Chan Soo Park / Project Director Signature:
3. Engineer's Approval
Refer to our comments on the attached comments and response sheets.
Refer to our comments on the attached comments and response sheets.
Refer to our comments on the attached comments and response sheets.
- Refer to our comments on the attached comments and response sheets.
- Refer to our comments on the attached comments and response sheets.
□Approved □Approved as noted □Revise and resubmit □ Rejected
□Approved □Approved as noted □Revise and resubmit □ Rejected
□Approved □Approved as noted □Revise and resubmit □ Rejected
Approved Approved as noted Revise and resubmit Rejected
□Approved □Approved as noted □Revise and resubmit □ Rejected
Approved Approved as noted Revise and resubmit Rejected



#### Comment & Response Sheet

Document No: RA140-22-BRG-CW-DW-22300-B1-DR2/C

Ref. Transmittal No : RA140-HDC-22-CBR-DRW-0063-00 (Rev. 00); RA140-HDC-22-CBR-DRW-0063-01 (Rev. 01);

Ref. Report No & DWG package No : RA140-22-BRG-CW-DW-22300-B1

Document title : DETAILED DESIGN - SHUWAIKH PORT INTERCHANGE P(72) - P(A0) GENERAL, CONCRETE OUTLINE &

 ${\bf LONGITUDINAL\ PRESTRESSING\ -\ DRAWINGS\ PACKAGE}$ 

Comments Issued by & date : T.Y. Lin International (Goedhart) on 11 February, 2016
Answer Issued by & date : Systra (SEKKAT), on 12 January, 2016

Consent Classification : B (A: Consented to, authorized to proceed / B: Consented to, subjected to comments / C: Revise & Resubmit, incorporate comments

W: Rejected, not consented to, reason Noted)

No.	Rev.	Reference	e Comment rev. <sup>2</sup>	Comment	Response	Cat.1	Status <sup>3</sup>
1	A2	General	1 <sup>st</sup> comment	Provide full ICE report that includes the description of analysis and design verification.	Please refer the attached ICE full check report of RA140-TRS-1610 whose review is for SPIC P(72)-P(A0) Superstructure reinforcement drawing(DW-21100). Be informed that the ICE consent of this drawing package(DW-22300) is subjected to the review result of reinforcement(DW-21100). This can confirmed from Appendix-1.	2	
	B1		2 <sup>nd</sup> comment	Noted.			AA
2	A1	22302	1 <sup>st</sup> comment	Per Technical Conditions III.3 Section 5.2.2 lap splices are not permitted for bars greater than 32mm in diameter. Add a note or remove the splice lengths for these bars.  The following note will be added: "Per Technical Conditions III.3 Section 5.2.2 lap splices are not permitted for bars greater than 32mm in diameter."		1	
	B1		2 <sup>nd</sup> comment	Noted.			AA
3	A1	22302	1 <sup>st</sup> comment	Add a note to increase the lap length for top reinforcement per AASHTO LRFD 5.11.2.1.2.	The following note will be added: "For top horizontal or nearly horizontal reinforcement so placed that more than 300 mm of fresh concrete is cast below the lap length values of typical	1	

- 1) Category : Cat A = Agreed with response, Cat 0 = Observation / Note, Cat 1 = Information Required Only, Cat 2 = Major Comment / Revision Required
- 2) Comment Rev.: 1st comment, 2nd comment...
- 3) Comment Status after response: AA = Resolved, implemented and closed, BB = Resolved not yet implemented, CC = Unresolved
  Page 1 of 6



#### Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project (Main Link) / Contract: RA/140



SHEII	KII Jabei	i Al-Allillau Al-Sac	ian Causeway Project (	(Main Link) / Contract: RA/140		Sha	ill drid parchers
					reinforcement should be multiplied by 1.4. (AASHTO LRFD 2007 §5.11.2.1.2)."		
	B1		2 <sup>nd</sup> comment	Noted.			AA
4	A2	22316, 22318, and 22320	1 <sup>st</sup> comment	Provide the edge of deck radii for Box-1.	Noted, it will be updated in next revision.	1	
	B1		2 <sup>nd</sup> comment	Noted.			AA
5	A1	22358	1 <sup>st</sup> comment	Detail 11 – Provide clarification on the wearing surface around the drainage.	Please refer to drawing DW-60375 of package DW-60365.	1	
			2 <sup>nd</sup> comment	Noted.			AA
6	A1	22358	1 <sup>st</sup> comment	Detail 11 – Provide connection and material data for the shear studs.	The note below will be added in the general note of the package 22300: "Stainless steel shall be delivered in a quality comparable to ASTM 316L. Stainless steel will be used for ventilation tube; drainage spout, all stainless steel product including shear stud"	1	
			2 <sup>nd</sup> comment	Noted.			AA
7	A1	22361	1 <sup>st</sup> comment	Detail 2 – Specify the limits and the amplitude of the roughened surface.	The following note will be added:  "The surface of recess for studs will be intentionally roughened to an amplitude of 6mm.  Limits of the roughened zone will be detailed in shop drawings".	2	
	B1		2 <sup>nd</sup> comment	Noted.			AA
8	A1	22448	1 <sup>st</sup> comment	Confirm that there is adequate tangent length behind the post-tensioning anchor per the manufacturer.	In prestressing layout, we considered 1m of straight length.	2	



<sup>1)</sup> Category : Cat A = Agreed with response, Cat 0 = Observation / Note, Cat 1 = Information Required Only, Cat 2 = Major Comment / Revision Required

<sup>2)</sup> Comment Rev.: 1st comment, 2nd comment...

<sup>3)</sup> Comment Status after response: AA = Resolved, implemented and closed, BB = Resolved – not yet implemented, CC = Unresolved Page 2 of 6



Sheikh Jaber Al-Ahmad Al-Sabah (	Lauseway Project (N	viain Link) / Contract: RA/140	<u> </u>		shair and partners
			The supplier has confirmed that this is satisfies with his requirement.		
9 A2 22781	1st comment k	Verify that the light pole foundations between the structures will not conflict with the adjacent deck. In addition verify that during seismic events that pounding between the light pole foundation and the adjacent deck is prevented. This would be the relative movement between the adjacent spans, not the movement between the span and the pier.	To avoid any possible pounding between the light pole foundation and the adjacent deck, two modifications will be adopted:  The lightning pole axis will be moved by 200mm towards the deck. This would decrease the dimension of the lightning pole foundation by 200mm.  As proposed by lightning supplier, an anchor plate of 400mm instead of 500mm size will be adopted. This would decrease the dimension of the lightning pole foundation by 50mm.  These modifications will ensure a gap of 416mm (200+50+166) instead of the initial value of 166mm, and will only apply to P39-P76 area.  Drawing package DW-76000 will be updated accordingly.	2	AA

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3) Comment Status after response: AA = Resolved, implemented and closed, BB = Resolved – not yet implemented, CC = Unresolved Page 3 of 6





Sheikh Jab	er Al-Ahmad Al-Sabah Causeway P	oject (Main Link) / Contract: RA/140		hair and partners
			CONCRETE FOUNDATION (CIVIL SCOPE)  DETAIL 1	
			4 ANCHOR BOLTS  SERVICE 200 (Communication Cables)  PLAN VIEW A-A  SCALE: 1/10	
	2 <sup>nd</sup> com	nent Verify that the 416mm gap is sufficient for no pounding to occur due to out of phase vibration. Provide the updated		ВВ

- 1) Category : Cat A = Agreed with response, Cat 0 = Observation / Note, Cat 1 = Information Required Only, Cat 2 = Major Comment / Revision Required
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- 3) Comment Status after response: AA = Resolved, implemented and closed, BB = Resolved not yet implemented, CC = Unresolved Page 4 of 6



Sheikh Jabei	r Al-Ahmad A	l-Sabah Caเ	useway Project	(Main Link) /	Contract: RA/140



			· / /	•		
				DW-76600.		

<sup>1)</sup> Category : Cat A = Agreed with response, Cat 0 = Observation / Note, Cat 1= Information Required Only, Cat 2= Major Comment / Revision Required

<sup>2)</sup> Comment Rev.: 1<sup>st</sup> comment, 2<sup>nd</sup> comment...

#### Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project (Main Link) / Contract: RA/140



■ APPENDIX-1 (RA140-TRS-1565, RA140-TRS-1603)

A=CO/	М	Contract RA-140	- Sheikh Jaber A	-Ahmad Al-Sabah Causew	ay Project – I	Main Link
Submission Re	af No	RA140-TRS-15	585	Title: Please refer to the d	rawing list.	
Response Ref.		EKHC:AKML:60290056/8.2	2-20150068521	 		
-	No adverse c			X		
	_	ciple with minor Comments		H		
		nformation to proceed with Re	view	$\vdash$		
'	Major non-co	nformity found				
Remarks:						
For	detail please	e refer to the attached ICE re	eport.			
Exclusion:						
		nformation such as bar bend ed in the review.	ling schedules, t	king off information, locat	ions of coupl	ers/lapping and
		-CW-DW-28430-B5-Shuwaik -CW-DW-22000-A4-Shuwaikl			& Longitudin	al Prestressing
		-CW-DW-22300-A2-Shuwaik sent of this drawing packag				gitudinal
From: /	AECOM					
Name :	Edward K	.H. Chan	Signature :	ACM	Date :	7-Aug-15

A=COM	Contract RA-140 - Sheikh Jabe	Al-Ahmad Al-Sabah Causeway Project – Main Link
Submission Ref. No.	Please refer to the list below	Title: General, Concrete Outline & Prestressing Drawing Packages
Response Ref. No.	EKHC:AKML:60290056/8.2-2015006584T	Drawing Labrages
lesponse: No adverse	comment	X
Agree in Pri	inciple with minor Comments	
Insufficient	Information to proceed with Review	F
	conformity found	H
	somormity found	
lemarks:		
	erse comments on the these packages subj reinforcement details) of the corresponding	ected to the result of ICE review on the Detailed Desig Superstructure:
ist of Drawing Package	<u>s</u>	
TDC_1520 DA140_22.DDG	S-CW-DW-23650-A1 Shuwaikh Port IC R08b (	Constal constate outline & Prostrossina
	S-CW-DW-23400-A1 Shuwaikh Port IC Rusb (	
	S-CW-DW-24250-A1 Shuwaikh Port IC R02 G	•
	S-CW-DW-24550-A2 Shuwaikh Port IC R03 G	
	S-CW-DW-25000-A2 Shuwaikh Port IC R04 G	•
	S-CW-DW-26000-A2 Shuwaikh Port IC R05 G	
RS-1529 RA140-22-BRG	S-CW-DW-25400-A2 Shuwaikh Port IC R06 G	eneral, concrete outline & Prestressing
RS-1529 RA140-22-BRG	S-CW-DW-26350-A2 Shuwaikh Port IC R07 G	eneral, concrete outline & Prestressing
TRS-1529 RA140-22-BRG	S-CW-DW-27000-A2 Shuwaikh Port IC R08a (	Seneral, concrete outline & Prestressing
RS-1543 RA140-22-BRG	S-CW-DW-12000-A2 Ghazali Bridge P01 to P1	2 General, Concrete Outline & Longitudinal Prestressing
RS-1537 RA140-22-BRG	S-CW-DW-16000-A2 Shuwaikh Port Bridge P(	2) - P(28) General, concrete outline & Prestressing
		28) - P(34) General, concrete outline & Prestressing
		34) - P(40) General, concrete outline & Prestressing
		P(72) General, concrete outline & Prestressing
	9 1 7	P(A0) General, concrete outline & Prestressing
		P(A16) General, concrete outline & Prestressing
		to P(A88) General, concrete outline & Prestressing
		to P(A101) General, concrete outline & Prestressing
	S-CW-DW-38275-B1 Approach & Subiyah Brid S-CW-DW-39000-B2 Approach & Subiyah Brid	
IR3-1000 RA 140-22-BR0	S-CVV-DVV-39000-B2 Approach & Subiyan Brid	ge congitudinal Prestressing
From: AECOM		10.4
		Deal

- 1) Category : Cat A = Agreed with response, Cat 0 = Observation / Note, Cat 1 = Information Required Only, Cat 2 = Major Comment / Revision Required
- 2) Comment Rev.: 1st comment, 2nd comment...
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## SYSTRA – QUALITY CONTROL & QUALITY ASSURANCE CHECKLIST

Reference RA140-QFM-01125-2016-01-15-DCH

PACKAGE: 21K/22K SHUWAIKH PORT INTERCHANGE P64-P66W & P72-P(A0)

								Required A	Action by ER					
	ı	Document reference	Revision	Title 1	Title 2		Title 3	For Review	For Information	Basic Design Comments Integrated	Detailed Design Comments Integrated	ICE Comment Sheets Included	ICE Reports Included	Status (Consented by ER)
				SHUWAIKH PORT INTERCHANGE P(72) - P(A0)		GENERAL - PACKAGE 1								
22K		RA140-22-BRG-CW-DW-22300	B1	SHUWAIKH PORT INTERCHANGE P(72) - P(A0)	GENERAL DRAWING, COL & LONG. PRESTRESSING	DRAWINGS P(72) - P(A0)		√		N/A	٧	٧	٧	N/A
				SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0) - SUPERSTRUC	CTURES	BOX 3								
21K		RA140-22-BRG-CW-TR-21803	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	TRANSVERSE FLEXURE SECTIONS	PIER P(64) TO PIER R05(P9)		√		N/A	٧	N/A	N/A	N/A
21K		RA140-22-BRG-CW-TR-21812	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	END DIAPHRAGM REINFORCEMENT	CODE C3SE - BOX 3		√		N/A	٧	N/A	N/A	N/A
21K		RA140-22-BRG-CW-TR-21813	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	END DIAPHRAGM REINFORCEMENT	CODE C3TE - BOX 3		√		N/A	٧	N/A	N/A	N/A
21K		RA140-22-BRG-CW-TR-21833	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	DECK REINFORCEMENT	BOX 3		$\checkmark$		N/A	٧	N/A	N/A	N/A
21K		RA140-22-BRG-CW-DW-21600	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	SUPERSTRUCTURES	DRAWINGS - BOX 3		√		N/A	٧	٧	٧	N/A
				SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0) - SUPERSTRUC	CTURES	STITCHES								
21K		RA140-22-BRG-CW-DW-21700	B1	SHUWAIKH PORT INTERCHANGE P64-P66 (W) / P72-P(A0)	SUPERSTRUCTURES	DRAWINGS - STITCH		√		N/A	٧	٧	٧	N/A

RA140-HDC-32-CBR-TCR-0113-00
RA140-HDC-22-CBR-DRW-0060-00
RA140-HDC-22-CBR-DRW-0063-00
RA140-HDC-22-CBR-DRW-0063-00
(Comment and Response Sheets Included):

RA140-HDC-22-CBR-DRW-0062-00
RA140-HDC-22-CBR-TCR-0115-00

	Drawings and reports/calculations have been compared and are consistent	√
	Drawings filled properly	√
	Drawings checked for technical adequacy, legibility, mathematical and drafting accuracy	√
	Drawings are in agreement with other disciplines	√
procedures :	Conformance with Design Basis and applicable design specification	√
	Revisions have been clouded	√
	Drawings were properly checked using color codes (Red, Green, Yellow).	√
	Dimensions and units correct and consistent	√

DATE	15/01/2016
NAME	Delphine Challant
SIGNATURE	BCHA

REMARKS					
---------	--	--	--	--	--

HDEC & CGCC - Quality Control and Assurance Checklist for RA140 Project®					
	SYSTRA QFM are properly filled	V			
	Consistency of the drawings and reports	<b>√</b>			
HDEC & CGCC certifies that this submission is properly reviewed by quality control process	Composition of the document and typographical error are properly reviewed	1			
	Drawing list and revision are properly checked	<b>V</b>			

		Related Document				
	Document No.	Rev.	Title	Transmittal No.	Submission Date	
	RA140-22-BRG-CW-DW-22300	B1	Shuwaikh Port Interchange P(72)-P(A0) General, Concrete Outline & Longitudinal Prestressing - Drawing Package	RA140-HDC-22-CBR-DRW-0063-01	16-Jan-16	
Completeness of the package						

				REMARKS	
--	--	--	--	---------	--

Dateඔ	QC Engineer	Signature
16-Jan-16	YOO DONG YUN	K

AECC	M	Contract RA-140 - She	ikh Jaber A	-Ahmad Al-Sabah Causeway Project – Main Link
Submission	Ref. No.	RA140-TRS-1610		Title: RA140-22-BRG-CW-DW-21100-A2-Shuwaikh Port IC Bridge P64-P66(W)/P72-P(A0) Superstructure -
Response Re	ef. No.	EKHC:AKML:60290056/8.2-2015	5007891T	Longitudinal
Response:	No adverse	comment		X
	Agree in Pri	nciple with minor Comments		
	Insufficient l	Information to proceed with Review		
	Major non-c	onformity found		
Remarks:				
For	detail please	refer to the attached ICE report.		
Exclusion:				
		n information such as bar bending cluded in the review.	g schedules	taking off information, locations of couplers/lapping
2. ln	transverse c	lirection, please provide the reinfo	orcement in	stitch area for checking.
From:	AECOM			ba a l
Name :	Edward I	K.H. Chan	Signature	Date : 8-Sep-15

# The Design, Build, Completion and Maintain

# Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project (Main Link) Contract No. RA140

## **Kuwait**

**ICE Check Report for Detailed Design Stage** 

TRS-1610 Shuwaikh Port IC Bridge P64-P66(W)/P72-P(A0) Superstructure











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2.	Contract Documents used in the Checking	3
3.	Frozen Scheme Reference in Basic Design Stage	3
4.	Standards and Codes of Practice used in the Checking	3
5.	List of Non-Conformance Findings	3
6.	Computer Analysis of Structure	4
7.	Approaches for Checking	4
8.	Summary of Findings and Critical Issues	5

### **Appendices**

Appendix A List of Non-conformance

Appendix B Approaches for Checking





#### 1. List of Documents Checked

	Transmittal Number/Document No.	Title
Design Package	TRS-1610	SHUWAIKH PORT INTERCHANGE BRIDGE P64-P66(W)/P72- P(A0)
Design Package	RA140-22-BRG-CW-DW-21100-A2	Shuwaikh Port IC Bridge P64-P66(W)/P72-P(A0) Superstructure

### 2. Contract Documents used in the Checking

- a) Document III.1: General Specifications
  - MPW, Roads Administration: General Specifications for Kuwait Motorway/Expressway System, August 2004 and amendments until Tender closing date.
  - AASHTO LFRD Bridge Construction Specifications, 2<sup>nd</sup> Edition 2004, including 2009 Interim Revisions
  - General Specifications for Buildings and Engineering Works for Ministry of Public Works year 1990 and amendments until Tender closing date.
- b) Document III.2: Particular Specifications Revision 2M
- c) Document III.3: Design Criteria Revision 2M
- d) Geotechnical Factual Report: Soil Investigation for Port Interchange (PI) Port Bridge (PB) Ghazali Transition (GT)

### 3. Frozen Scheme Reference in Basic Design Stage

Package/Document No.	Package / Document Title
RA140-22-BRG-CW-DW-21100-A2	Shuwaikh Port IC Bridge P64-P66(W)/P72-P(A0)
	Superstructure
RA140-22-BRG-CW-DW-22300-A2	Shuwaikh Port IC P(72) - P(A0) - General, Concrete
	Outline & Longitudinal Prestressing
RA140-22-BRG-CW-DW-22000-A4	Shuwaikh Port IC P(64) - P(72) - General, Concrete
	Outline & Longitudinal Prestressing
RA140-10-BRG-CW-TR-00814-B3	Design Basis-Bridge
RA140-10-BRG-CW-TR-00807-A5	Durability Study Plan
RA140-10-BRG-CW-TR-00808-B1	Durability Study

# 4. Standards and Codes of Practice used in the Checking

AASHTO LRFD Design Specifications SI Units 4th Edition 2007

# 5. List of Non-Conformance Findings

See Appendix A





#### 6. Computer Analysis of Structure

Structure	Prestressed concrete box girder bridge
Name of Computer Program	Midas
Version	2015
Methodology	Analysis and checking
Basic Input Parameters	Concrete C40 and C50
Assumptions	Elastic linear

#### 7. Approaches for Checking

The independent checking is carried out for the superstructures of Shuwaikh Port Interchange Bridge P(72) - P(A0) West, Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project. The bridge being considered is a straight bridge consisting of a double deck. The deck superstructure consists of seven spans and its corresponding substructures, which include eight sets of pier caps, piers and piles respectively.

A global 3-D frame model has been built using MIDAS CIVIL 2015, which is comprised of the following structural elements:

- Pre-stressed concrete box girder
- Concrete pier caps
- Concrete piles
- Bearings

It is noted that all piles are assumed to be fixed in the vertical direction at the toe, in addition to being supported horizontally by soil springs which is derived from the p-y curve of each soil condition.

The structural analysis of the bridge performed by MIDAS CIVIL 2015 are listed as followed, all of them are set in accordance with the design basis and the planned construction schemes.

- Static analysis
- Construction stage analysis
- Response spectrum analysis
- Eigen value analysis
- P-delta analysis

The loadings are applied according to Design Basis: Bridges (Report No.: RA140-10-BRG-CW-TR-00814-B1) and AASHTO LRFD Design Specifications SI Units 4<sup>th</sup> Edition 2007.

Moreover, the interaction of bending and axial force for piles calculation is made by Oasys Adsec.

In this ICE review, independent checking has been carried out mainly on the superstructure in longitudinal direction. The main checking items are:

- Construction stage.
- Service limit stage.
- Ultimate limit stage.
- Extreme limit stage.

For details, please kindly refer to the attached Appendix B.





# 8. Summary of Findings and Critical Issues

8.1 The summaries of checking for SLS can be shown below. Compressive stress

	Load case	Equation	Locations	Normal load stress limit	Stress by Analysis	Checking
	Dead load	0.45f'c	upper fiber	22.50	8.27	OK
	Dead Idad	0.431 C	lower fiber	22.50	14.67	OK
SLS I (normal	Dead load + live load	0.6 φ f'c	upper fiber	22.50	8.92	OK
load)	Dedd Iodd i live Iodd	υ.υ ψι υ	lower fiber	24.22	17.24	OK
SLS I (over	Dead load + live load	0 6 4 f'c	upper fiber	24.75	9.00	OK
load)	Dead load + live load	0.6 φ f'c	lower fiber	26.65	17.28	OK
SLS VI (normal	Dood lood : live lood	0.4f'c	upper fiber	20.00	9.51	OK
load)	Dead load + live load	0.41 C	lower fiber	20.00	16.63	OK

#### Tensile stress

	Load case	Locations	limitation	Checking
	Dead load	upper fiber	1.77	OK
	Deau Ioau	lower fiber	1.77	OK
SLS III (normal load)	Dead load + live load	upper fiber (over support)	1.77	OK
		lower fiber	1.77	OK
SLS III (over	Dead load + live load	upper fiber	3.54	OK
load)	Deau Idau + IIVe Idau	lower fiber	3.54	OK

## Principal stress

	Load case	Locations	limitation	Checking
	Dead load	Neutral axis at web	2.04	OK
SLS III (normal load)	Dead load + live load	Neutral axis at web	2.04	OK
SLS III (over load)	Dead load + live load	Neutral axis at web	2.04	OK





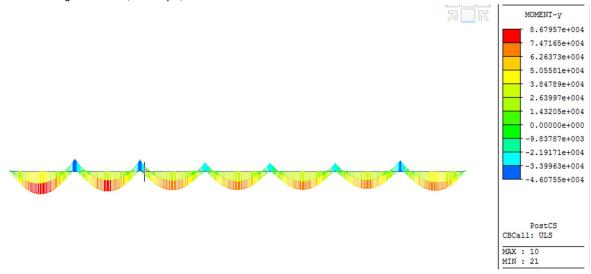


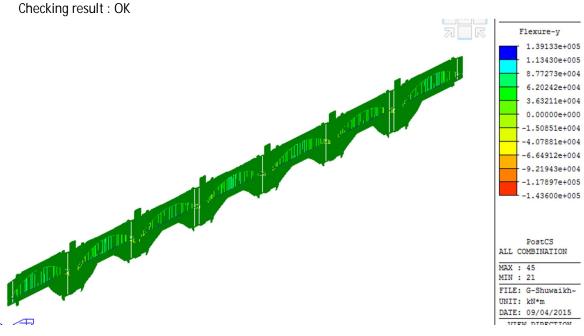
8.2 The summaries of checking for ULS can be shown below.

Bending moment

For all sections, requirements are satisfied.

Bending moment (Envelope)



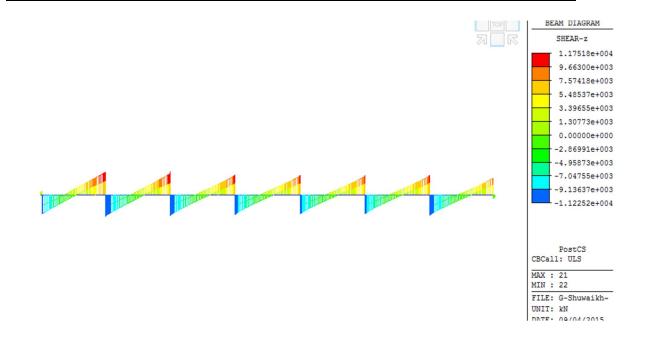


#### Shear

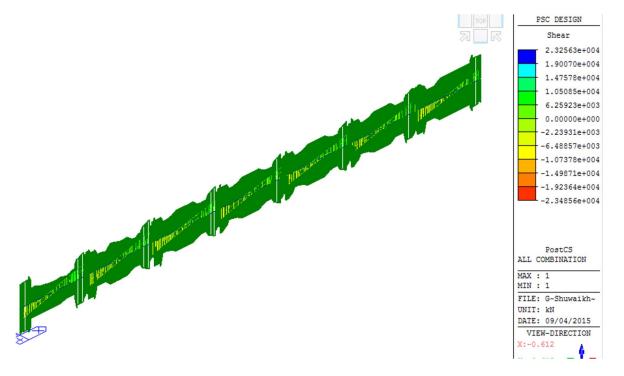
For all sections, requirements are satisfied.

Shear Force (Envelope)





#### Checking result: OK



#### **Torsion**

For all sections, requirements are satisfied. For all sections, Torsion T<sub>u</sub> ≤ 0.25T<sub>cr</sub>, Ignore Torsional Effects, according to 5.8.2.1.





# Appendix A List of Non-conformance Findings

# **ICE Check Report – List of Comments or Non-conformances**

Document No :

RA140-22-BRG-CW-DW-21100-A2-ICE1IC

Ref.Transmittal No : TRS-1610

Ref. Report No & DWG package No : RA140-22-BRG-CW-DW-21100-A2

Document title : Shuwaikh Port IC Bridge P64-P66(W)/P72-P(A0) Superstructure - Longitudinal

Comments Issued by & date : Reviewed by Dr. Yu, Guoxiong on 7<sup>th</sup> September 2015

Answer Issued by & date

Consent Classification : A ( A: No adverse comments / B: Agree in Principle with minor comments / C: Insufficient Information to proceed with review / W: Major Non-conformity found, revision required)

No.	Rev.	Reference	Comment rev.	Comment or Non-Conformance	Response	Cat.1
				<ul> <li>In transverse direction, please provide the reinforcement in stitch area for checking.</li> <li>All construction information such as bar bending schedules, taking off information, locations of couplers/lapping and etc are all excluded in the review.</li> </ul>		
1	A2		1 <sup>st</sup>	ICE has checked the structure in longitudinal design, and found it is OK.		А





# Appendix B Approaches for Checking

# Report on independent checking of superstructure in Shuwaikh Port Interchange P72-PA0 West Longitudinal direction

7<sup>th</sup> September 2015

#### 1. Scope of the report

The purpose of this report is to present the independent checking of the superstructure in longitudinal direction for the Shuwaikh Port Interchange P(72) – P(A0) West of Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project.

#### 2. General Characteristics

#### 2.1 Design documents

The checking is based on the following design documents and design codes:

RA140-22-BRG-CW-DW-22300-A1

Shuwaikh Port Bridge P72- PA0 - General Concrete Outline and Longitudinal prestressing

RA140-22-BRG-CW-DW-21100-A2

Shuwaikh Port Bridge P64-P66(W)/P72- P(A0) – Typical Box Main Line – Superstructure – Drawings Package

AASHTO LRFD Bridge Design Specifications SI Units 4<sup>th</sup> Edition 2007.

## 2.2 Description of Shuwaikh Port Interchange Bridge

Please refer to the substructure checking report of this bridge.

#### 2.3 Materials

#### 2.3.1 Concrete characteristics

Please refer to the substructure checking report of this bridge.

#### 2.3.2 Prestressing steel characteristics

Please refer to the substructure checking report of this bridge.

#### 2.3.3 Reinforcing steel characteristics

Please refer to the substructure checking report of this bridge.

#### 2.3.4 Elastomeric bearing

Please refer to the substructure checking report of this bridge.

#### 2.4 Software

Please refer to the substructure checking report of this bridge.

## 3. Modelling

Please refer to the substructure checking report of this bridge.

#### 3.1 Nodal coordinates of substructures

Please refer to the substructure checking report of this bridge.

#### 3.2 Bearing stiffness

Please refer to the substructure checking report of this bridge.

#### 3.3 Soil spring

Please refer to the substructure checking report of this bridge.

#### 3.4 P-delta effect

Please refer to the substructure checking report of this bridge.

### 3.5 Construction stages, creep and shrinkage

Please refer to the substructure checking report of this bridge.

## 4. Special issues for superstructure modeling

#### 4.1 Loads and Load Combinations

Ship impact load

According to desing basis for bridge (verstion B5), 5.14.2, the superstructure shall be able to resist a point load of 2MN on 1m<sup>2</sup> perpendicular to the face of structure.

For the loads other than ship impact load on the superstructure, please refer to the substructure checking report of this bridge.

## 4.2 Effective width of superstructure

When the stress of box girder is calculated, effective width of the flange is used. The figure below shows the regulations on effective width in AASHTO 2007.

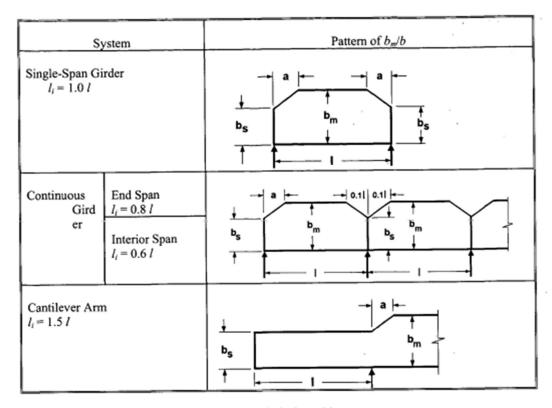


Figure 4.6.2.6.2-1 Pattern of Effective Flange Width,  $b_e$ ,  $b_m$  and  $b_s$ .

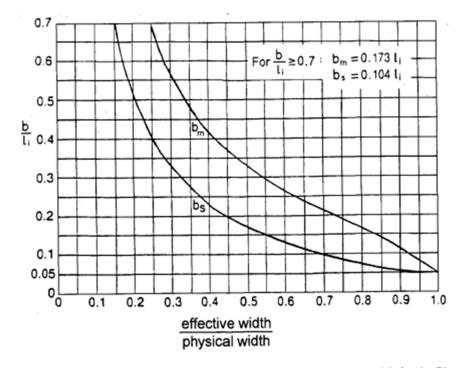
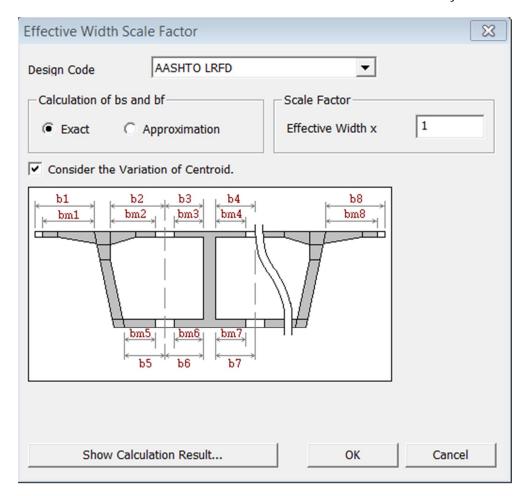


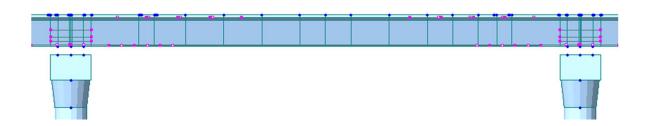
Figure 4.6.2.6.2-2 Values of the Effective Flange Width Coefficients for  $b_m$  and  $b_s$  for the Given Values of  $b/l_s$ .

As shown below, in Midas, a built-in tool is used to calculate the effective width for every section.



# 4.3 Modeling of the prestressing tendon

As shown by the figure below, the pretensiong tendon, post tensioning tendon and prestressing bar are simulated in the analytical model.



# 5. loads combination and checking criterion

#### 5.1 In service

SLS

	DC	SIDL	LL	WS (win d on str.)	WL (win d on live load)	TU	CR/S H	TG	PR (pres tressi ng force )	SE	
SLS I -b	1	1	1	0.3	0.3	1	1	0.5	1	1	Compressive stress checking
SLS III	1	1	0.8	-	-	1	1	0.5	1	1	Tensile stress checking
SLS VI	0.5	0.5	1	-	-	-	-	0.5	-	•	Compressive stress checking

Compressive stress checking criterion

Compressive stress limit after loasses (AASHTO 2007)

Table 5.9.4.2.1-1 Compressive Stress Limits in Prestressed Concrete at Service Limit State After Losses, Fully Prestressed Components.

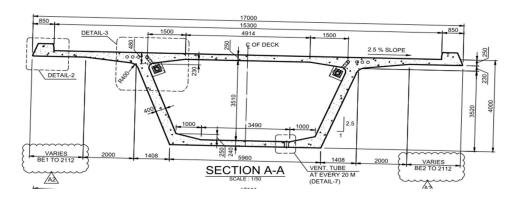
Location	Stress Limit
<ul> <li>In other than segmentally constructed bridges due to the sum of effective prestress and permanent loads</li> </ul>	0.45 f' <sub>c</sub> (MPa)
<ul> <li>In segmentally constructed bridges due to the sum of effective prestress and permanent loads</li> </ul>	0.45 f' <sub>c</sub> (MPa)
<ul> <li>In other than segmentally constructed bridges due to live load and one-half the sum of effective prestress and permanent loads</li> </ul>	0.40 f' <sub>c</sub> (MPa)
Due to the sum of effective prestress, permanent loads, and transient loads and during shipping and handling	$0.60 \phi_w f_c' \text{ (MPa)}$

# 5.7.4.7.2c Approximate Method for Adjusting Factored Resistance

The provisions of this Article and the rectangular stress block method may be used in lieu of the provisions of Articles 5.7.4.7.2a and 5.7.4.7.2b where the wall slenderness is  $\leq 35$ .

The factored resistance of a hollow column, determined using a maximum usable strain of 0.003, and the resistance factors specified in Article 5.5.4.2 shall be further reduced by a factor  $\phi_w$  taken as:

- If  $\lambda_w \le 15$ , then  $\phi_w = 1.0$  (5.7.4.7.2c-1)
- If  $15 < \lambda_w \le 25$ , then  $\phi_w = 1 0.025 (\lambda_w 15)$ (5.7.4.7.2c-2)
- If  $25 < \lambda_w \le 35$ , then  $\phi_w = 0.75$  (5.7.4.7.2c-3)



Reduced factor calculation results are shown below:

		average t		
	L (m)	(m)	$\lambda$ w= L/t	φW
Over hange	4.11	0.31	13.43	1.00
Upper mid				
flange	7.91	0.29	26.96	0.75
web	3.34	0.40	8.35	1.00
Lower flange	5.49	0.24	22.70	0.81

So,

The limit for compressive stresses can be summarized by the table below.

	Load case	Equation	Locations	factor	f'c (N/mm2)	φw	Normal load stress limit	Overload stress limit
	Dead load	0.45f'c	upper fiber	0.45	50	1	22.50	24.75
	Dead load	0.451 C	lowe fiber	0.45	50	1	22.50	24.75
Construction	Dead load + live load	0.6 φ f'ci	upper fiber	0.6	50	1.00	30.00	
CONSTRUCTION	Dead load + live load	υ.υ φτισι	lowe fiber	0.6	50	1.00	30.00	
SLS I	Dead load + live load	0.6 φf'c	upper fiber	0.6	50	0.75	22.50	24.75
JLJ I	Dead load + live load	υ.υ φι τ	lowe fiber	0.6	50	0.81	24.22	26.65
SLS VI	Dead load + live load	0.4f'c	upper fiber	0.4	50	1	20.00	22.00
SLS VI	Dead Idad + Iive Idad	0.41 C	lowe fiber	0.4	50	1	20.00	22.00

Tensile stress checking criterion

Tensile stress limit after losses (AASHTO 2007)

Table 5.9.4.2.2-1 Tensile Stress Limits in Prestressed Concrete at Service Limit State After Losses, Fully Prestressed Components.

Bridge Type	Location	Stress Limit
Other Than Segmentally Constructed Bridges	Tension in the Precompressed Tensile Zone Bridges, Assuming Uncracked Sections	
	<ul> <li>For components with bonded prestressing tendons or reinforcement that are subjected to not worse than moderate corrosion conditions</li> </ul>	$0.50\sqrt{f_c'}$ (MPa)
	For components with bonded prestressing tendons or reinforcement that are subjected to severe corrosive conditions	0.25√f' <sub>c</sub> (MPa)
	For components with unbonded prestressing tendons	No tension
Segmentally Constructed Bridges	Longitudinal Stresses Through Joints in the Precompressed Tensile Zone	
	<ul> <li>Joints with minimum bonded auxiliary reinforcement through the joints sufficient to carry the calculated longitudinal tensile force at a stress of 0.5 f<sub>j</sub>; internal tendons or external tendons</li> </ul>	$0.25\sqrt{f_c'}$ (MPa)
	Joints without the minimum bonded auxiliary reinforcement through joints	No tension
	Transverse Stresses Through Joints	
	Tension in the transverse direction in precompressed tensile zone	0.25√f' <sub>c</sub> (MPa)
	Stresses in Other Areas	
	For areas without bonded reinforcement	No tension
	<ul> <li>In areas with bonded reinforcement sufficient to resist the tensile force in the concrete computed assuming an uncracked section, where reinforcement is proportioned using a stress of</li> </ul>	
	0.5 f <sub>y</sub> , not to exceed 205 MPa.	$0.50\sqrt{f_c'}$ (MPa)
	Principal Tensile Stress at Neutral Axis in Web	0.289√f' <sub>c</sub> (MPa)
	<ul> <li>All types of segmental concrete bridges with internal and/or external tendons, unless the Owner imposes other criteria for critical structures.</li> </ul>	

So the tensile stress limits are:

For location of no-joint.

	fc'	
	50.00	
0.25sqrt(fc')	1.77	other load
0.5sqrt(fc')	3.54	overload
0.289sqrt(fc')	2.04	principal
0.2073411(10)	2.04	tensile

For location of joint, Tensile stress is not allowed.

5.2 ULS Load combination

	DC	SIDL	LL	WS (win d on str.)	WL (win d on live load)	TU	CR/S H	TG	PR (seco ndar y prest ressi ng force )	SE	
ULS -I	1.25	1.5	1.75	-	-	0.5	1	0.5	1	1	Live load
ULS – II	1.25	1.5	1.35			0.5	1	0.5	1	1	Military live load
ULS – IIIb	1.25	1.5		1.4	-	0.5	1	1	1	1	High winds
ULS – IV	1.5	1.5	-	-	-	0.5	1	-	1	-	High dead load
ULS – V	1.25	1.5	1.35	0.4	0.4	0.5	1	0.5	1	1	

### Extreme Limit State

	DC	SIDL	LL	WS (win d on str.)	WL (win d on live load)	TU	CR/S H	TG	PR (pres tress ing force )	SE	
Ext -I	1	1	0.5	-	-	-	1	-	1	-	Seismic
Ext-II	1.25	1.5	0.5	-	-	-	1	-	1	-	Ship Impact

Checking criterion

#### 5.7.3.2 Flexural Resistance

#### 5.7.3.2.1 Factored Flexural Resistance

The factored resistance  $M_r$  shall be taken as:

$$M_r = \phi M_n \tag{5.7.3.2.1-1}$$

where:

 $M_n = \text{nominal resistance (N-mm)}$ 

φ = resistance factor as specified in Article 5.5.4.2

#### 5.7.3.2.2 Flanged Sections

For flanged sections subjected to flexure about one axis and for biaxial flexure with axial load as specified in Article 5.7.4.5, where the approximate stress distribution specified in Article 5.7.2.2 is used and where the compression flange depth is less than  $a = \beta_1 c$ , as determined in accordance with Eqs. 5.7.3.1.1-3, 5.7.3.1.1-4, 5.7.3.1.2-3, or 5.7.3.1.2-4, the nominal flexural resistance may be taken as:

$$M_{\star} = A_{\mu} f_{\mu} \left( d_{\mu} - \frac{a}{2} \right) + A_{s} f_{s} \left( d_{s} - \frac{a}{2} \right) - A_{s}^{s} f_{s}^{s} \left( d_{s}^{s} - \frac{a}{2} \right) + 0.85 f_{s}^{s} \left( b - b_{\star} \right) h_{f} \left( \frac{a}{2} - \frac{h_{f}}{2} \right)$$
(5.7.3.2.2-1)

where:

 $A_{ps}$  = area of prestressing steel (mm<sup>2</sup>)

f<sub>ps</sub> = average stress in prestressing steel at nominal bending resistance specified in Eq. 5.7.3.1.1-1 (MPa)

 $d_p$  = distance from extreme compression fiber to the centroid of prestressing tendons (mm)

 $A_y$  = area of nonprestressed tension reinforcement (mm<sup>2</sup>)

f<sub>x</sub> = stress in the mild steel tension reinforcement at nominal flexural resistence (MPa), as specified in Article 5.7.2.1

d<sub>s</sub> = distance from extreme compression fiber to the centroid of nonprestressed tensile reinforcement (mm)

 $A'_{s}$  = area of compression reinforcement (mm<sup>2</sup>)

 $f'_s$  = stress in the mild steel compression reinforcement at nominal flexural resistance (MPa), as specified in Article 5.7.2.1

d's = distance from extreme compression fiber to the centroid of compression reinforcement (mm)

f'c = specified compressive strength of concrete at 28 days, unless another age is specified (MPa)

b = width of the compression face of the member (mm)

 $b_{\rm w}={
m web}$  width or diameter of a circular section (mm)

 $\beta_1$  = stress block factor specified in Article 5.7.2.2

h<sub>f</sub> = compression flange depth of an I or T member (mm)

 $a = c\beta_1$ ; depth of the equivalent stress block (mm)

Resistance factors are shown below:

•  $\phi = 1.00$  for flexure and tension of prestressed concrete

•  $\phi = 0.90$  for shear and torsion

•  $\phi = 0.80$  for compression in anchorage zones

•  $\phi = 1.00$  for tension in steel in anchorage zones

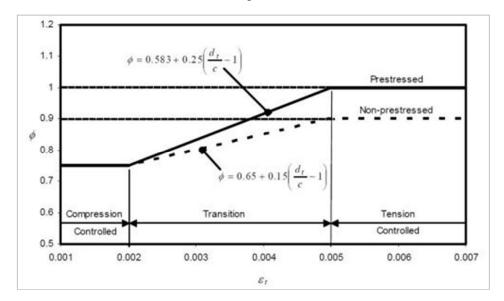


Figure 1: Variation of  $\Phi$  with net tensile strain  $\epsilon t$  and d/c for Grade 420 reinforcement and for prestressing steel

For structural verification in EXT,

Resistance factor:

 $\phi = (0.55^1/2) = 0.742$ 

#### 5.3 In Construction

	DC	SIDL	CL (cons tructi on load)	WS (win d on str.)	WL (win d on live load)	TU	CR/S H	TG	PR (pres tressi ng force )	SE	
SLS	1	1	1	-	-	1	1	0.5	1	1	
ULS-I	1.25	1.25	1.5	-	-	1	1	0.5	1	1	

For SLS,

compression stress limit according to table 5.9.4.2.2-1

Upper flange, 0.6\*50 = 30 (N/mm2)

Lower flange, 0.6\*50= 30 (N/mm2)

Table 5.14.2.3.3-1 Load Factors and Tensile Stress Limits for Construction Load Combinations.

														_					_	
	L						LO	AD FACT	ORS								STRESS	SLIMITS		
Load	Dead Load Live Load Wind Load Other Loads Loads									Flexural	Tension	Principa	l Tension							
Comb	DC	DIFF	U	CLL	IE	CLE	ws	WUP	WE	CR	SH	ΤU	TG	WA	EH EV ES	Excluding "Other Loads"	Including "Other Loads"	Excluding "Other Loads"	Including "Other Loads"	See Note
а	1.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	Yra	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289 \sqrt{f_c'}$	$0.331\sqrt{f_c'}$	
b	1.0	0.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	770	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289\sqrt{f_{c}'}$	$0.331\sqrt{f_{c}'}$	-
c	1.0	1.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	1.0	1.0	1.0	Y16	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289 \sqrt{f_c'}$	$0.331\sqrt{f'_c}$	-
d	1.0	1.0	0.0	1.0	0.0	0.0	0.7	1.0	0.7	1.0	1.0	1.0	Υrσ	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289\sqrt{f_c'}$	$0.331\sqrt{f_{c}'}$	1
e	1.0	0.0	1.0	1.0	1.0	0.0	0.3	0.0	0.3	1.0	1.0	1.0	Yra	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289\sqrt{f_c'}$	$0.331\sqrt{f_{c}'}$	2
f	1.0	0.0	0.0	1.0	1.0	1.0	0.3	0.0	0.3	1.0	1.0	1.0	Yra	1.0	1.0	$0.50\sqrt{f_c'}$	$0.58\sqrt{f_c'}$	$0.289 \sqrt{f'_c}$	$0.331\sqrt{f_c'}$	3

For SLS,

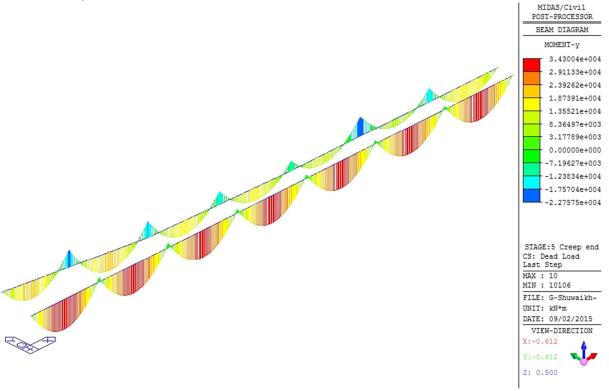
tensile stress limit according to table 5.14.2.3.3-1 = 0.5\*sqrt(50) = 3.54 (N/mm2)

principal tensile stress limit according to table 5.14.2.3.3-1 = 0.289\*sqrt(50) = 2.04 (N/mm2)

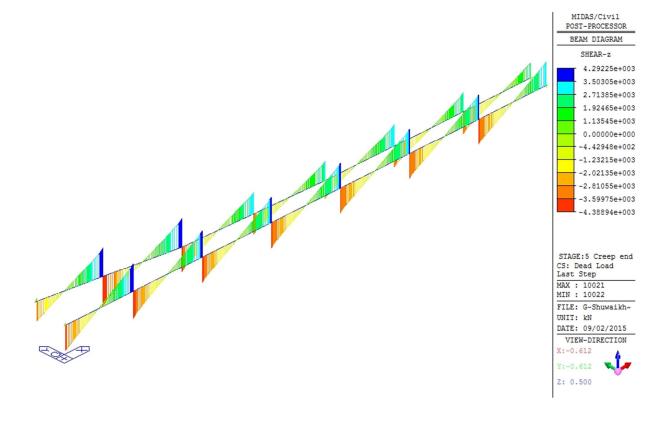
## 6. Internal force results due to load effect (kN,m)

### 6.1 Dead load

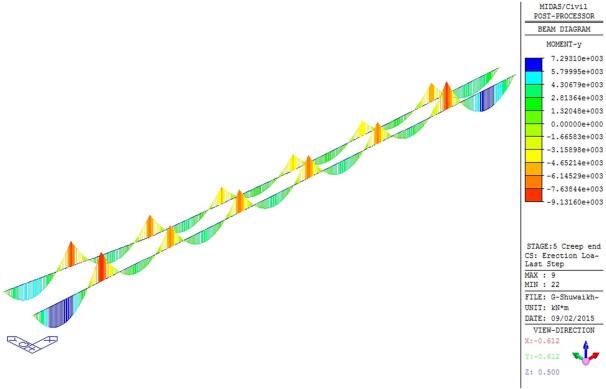
**Bending Moment** 



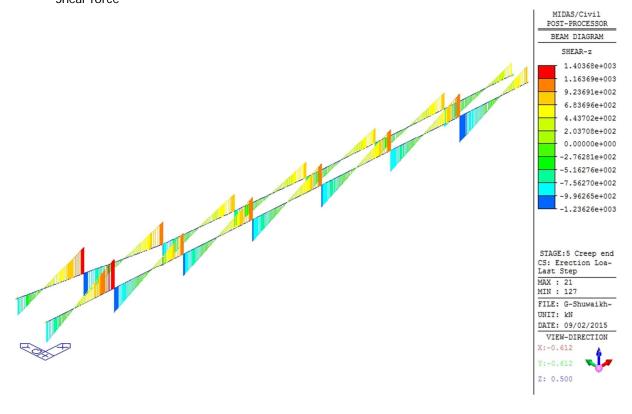
Shear force



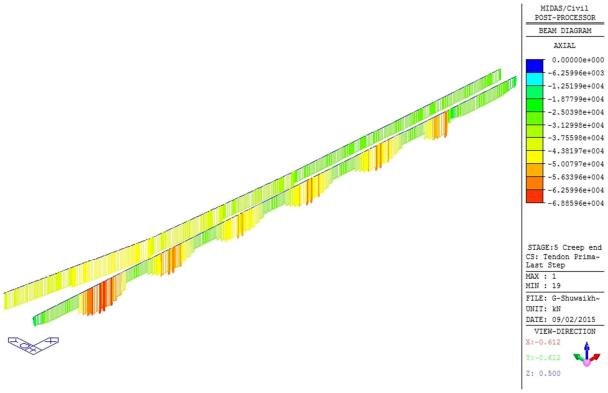
# 6.2 SIDL Bending moment



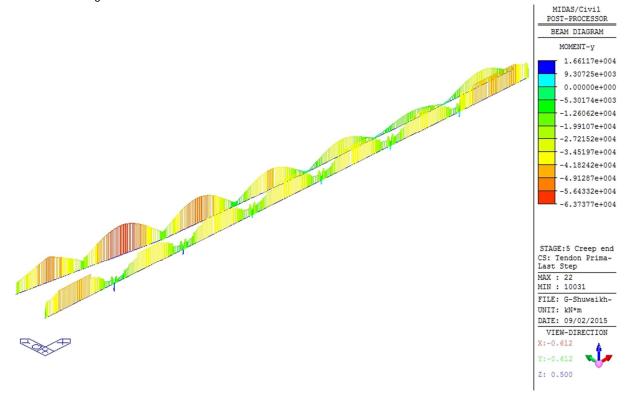




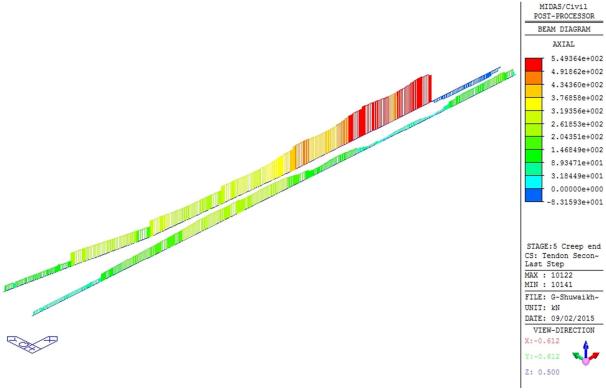
# 6.3 Prestressing primary Axial force



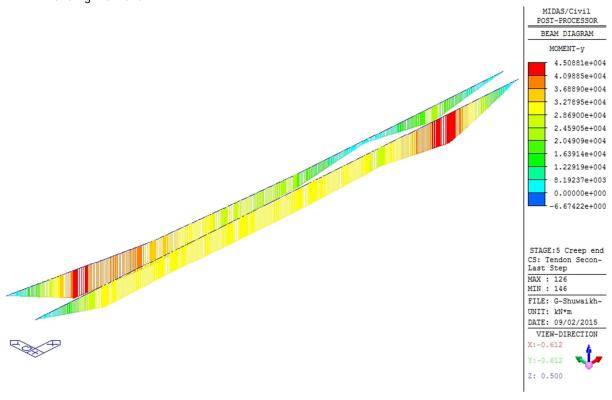
#### Bending moment



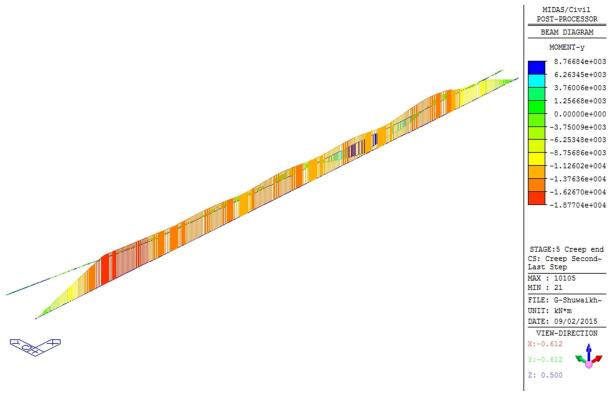
# 6.4 Prestressing secondary Axial force



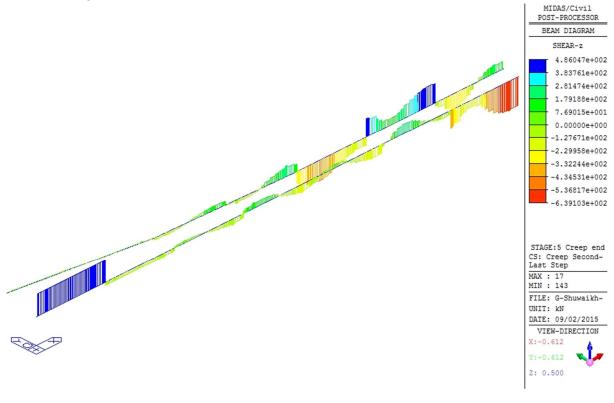
#### Bending moment



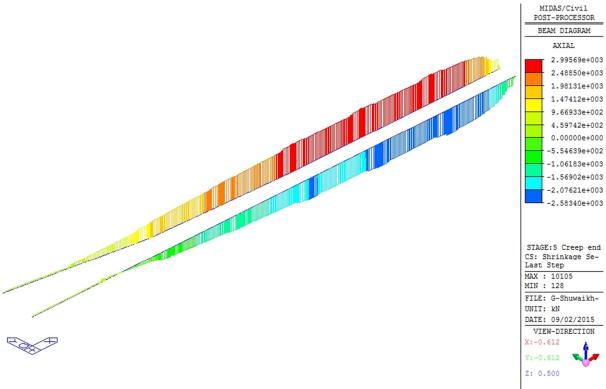
## 6.5 Creep Axial force



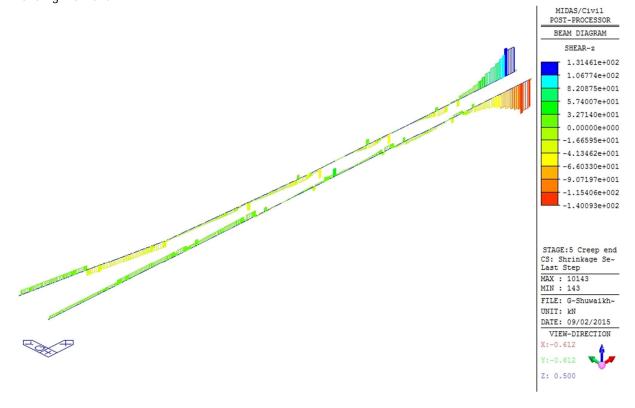
#### Bending moment



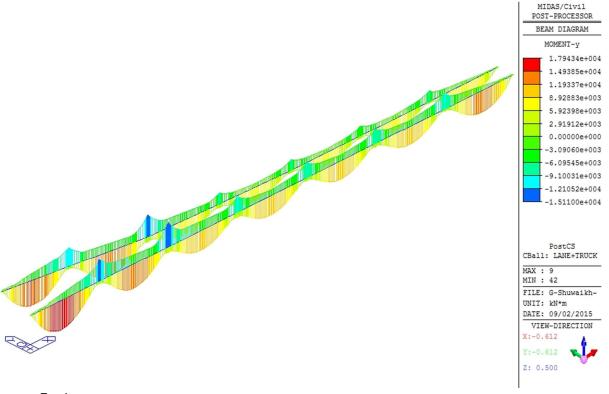
## 6.6 Shrinkage Axial force



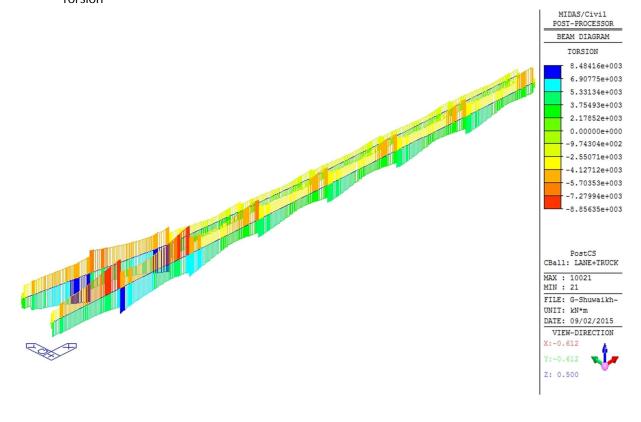
#### Bending moment



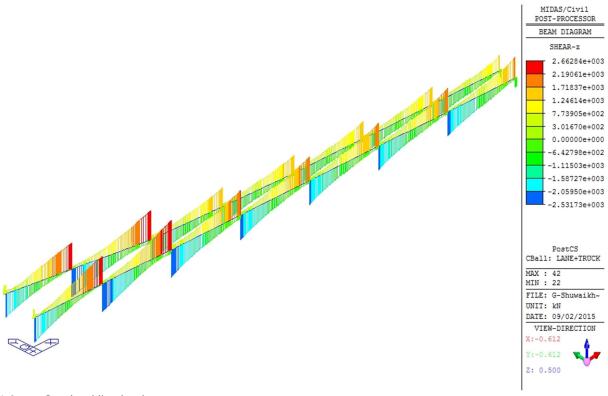
## 6.7 Normal live load Bending moment



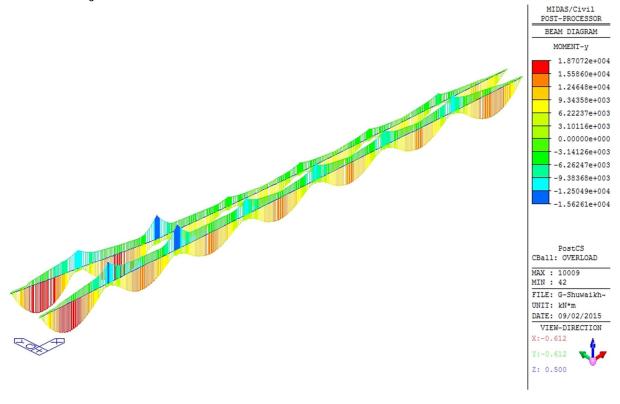




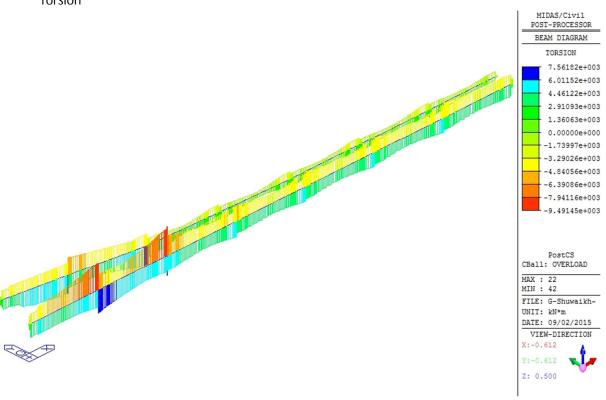
#### Shear force



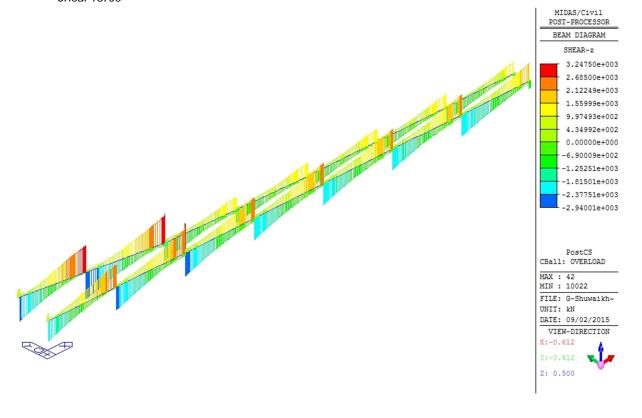
6.8 Overload live load Bending moment



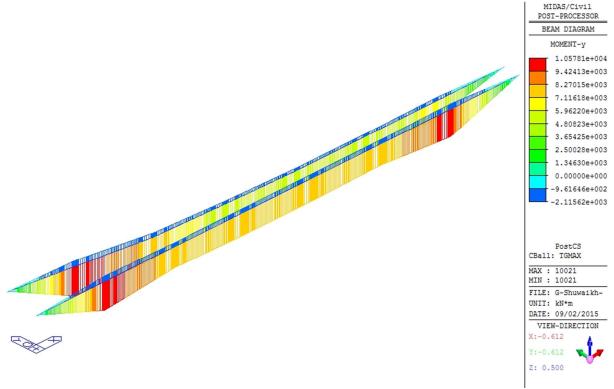




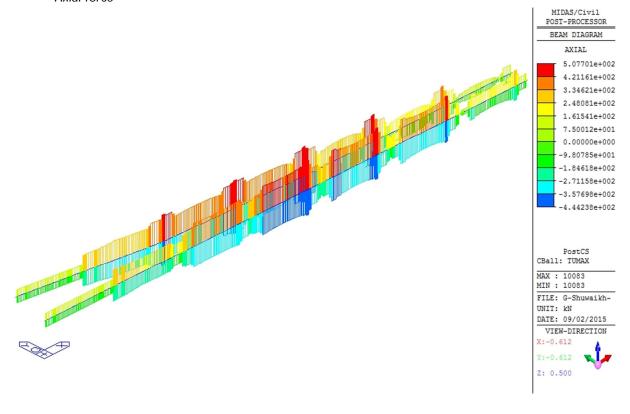




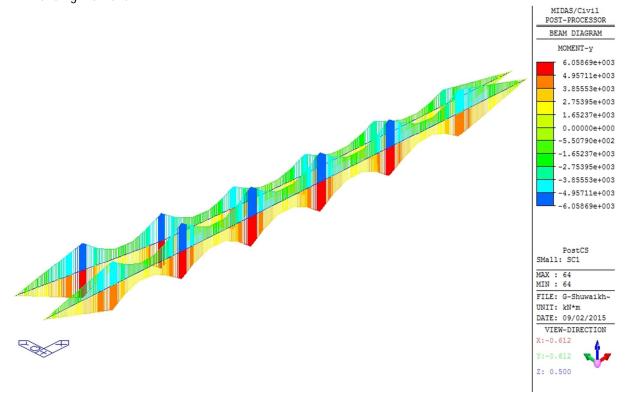
## 6.9 Temperature Gradient Bending moment



## 6.10 Temperature uniformed Axial force



# 6.11 Settlement Bending moment

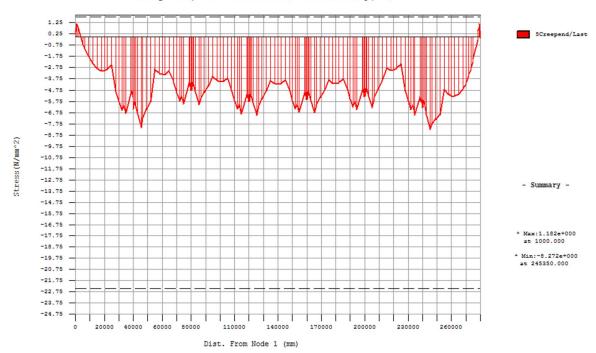


#### 7. SLS stress checking (N/mm2)

#### 7.1 After creep and shrinkage, 10,000days

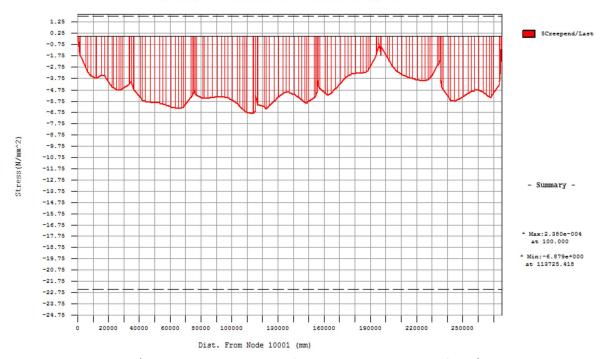
Top stress (Compressive limit = 22.5 N/mm2, tensile limit = 1.76 N/mm2) Check results: OK Central

5 Creep end, CS: Summation / Combined(+y,+z)

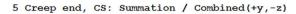


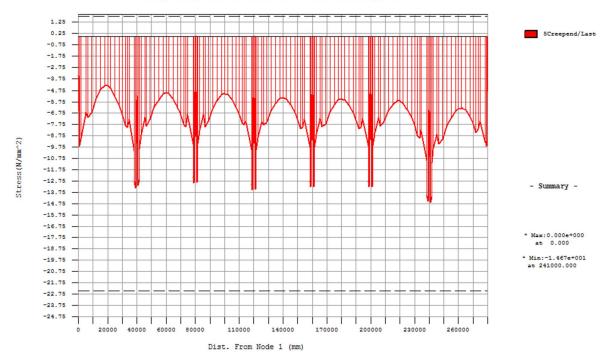
#### Enlargement

#### 5 Creep end, CS: Summation / Combined(+y,+z)



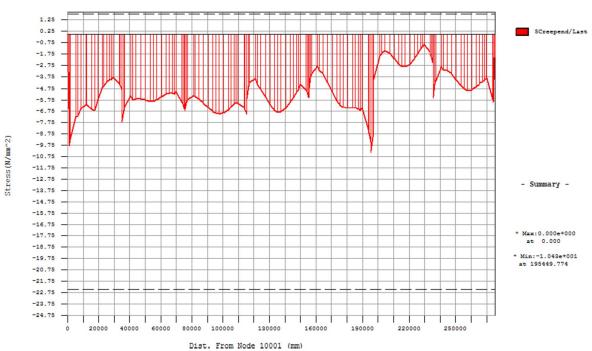
Bottom stress (Compressive limit = 22.5 N/mm2, tensile limit = 1.76N/mm2) Check results: OK





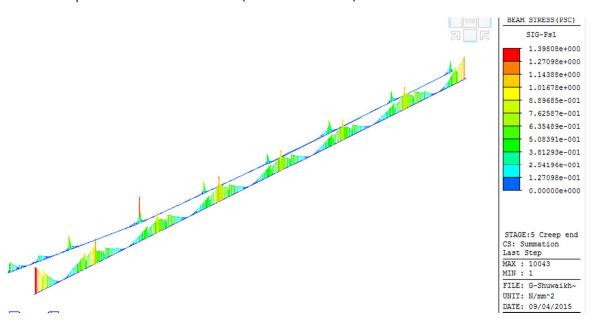
#### Enlargement

#### 5 Creep end, CS: Summation / Combined(+y,-z)



Principal stress at web neutral axis (limit = 2.04 N/mm2)





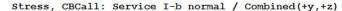
#### 7.2 SLS I-b (compressive stress checking)

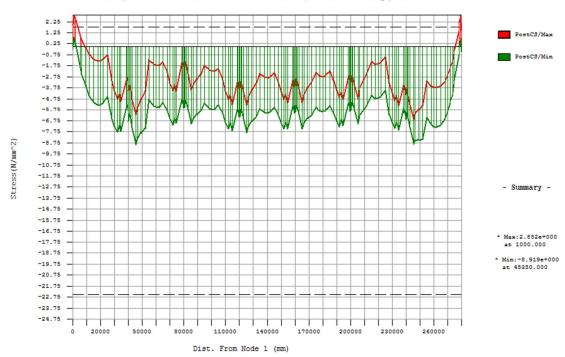
#### 7.2.1 Normal live load

Top stress (limitation = 22.50 N/mm2)

Check results: OK

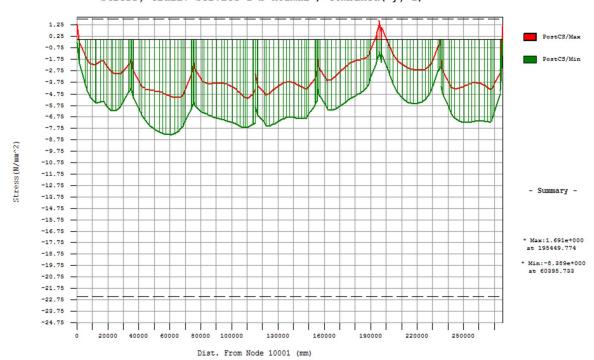
#### Central

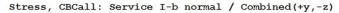


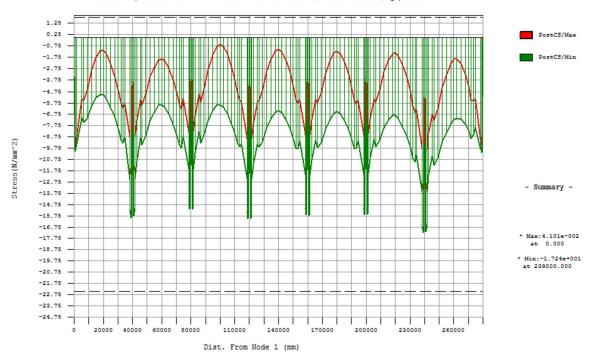


#### Enlargement

#### Stress, CBall: Service I-b normal / Combined(+y,+z)

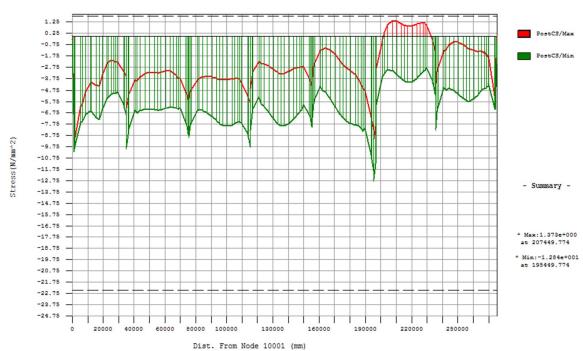


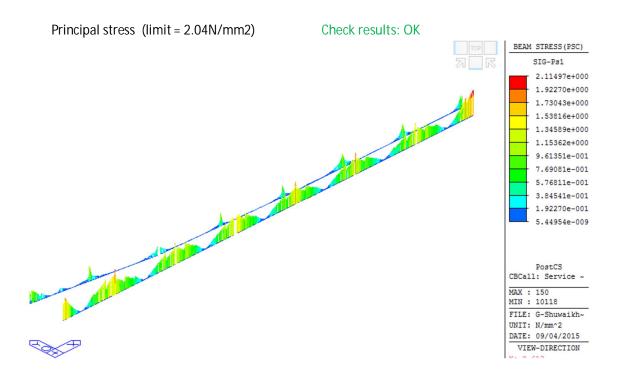




#### Enlargement

#### Stress, CBCall: Service I-b normal / Combined(+y,-z)





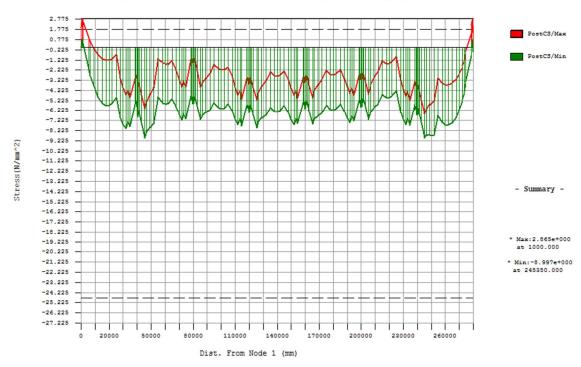
#### 7.2.2 Overload

Top stress (limit = 24.75N/mm2)

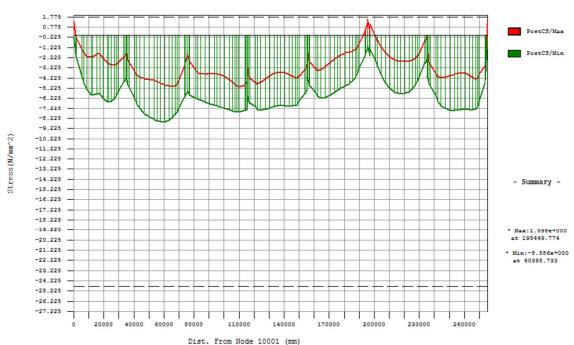
Check results: OK

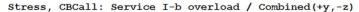
#### Central

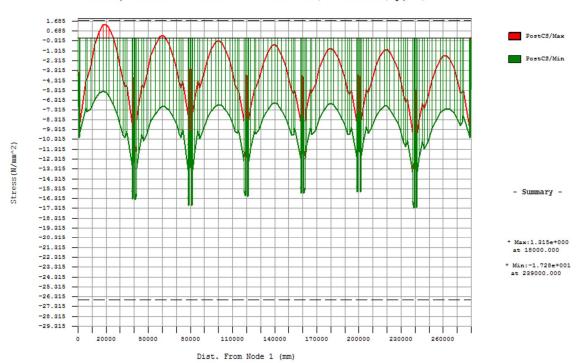
Stress, CBCall: Service I-b overload / Combined(+y,+z)



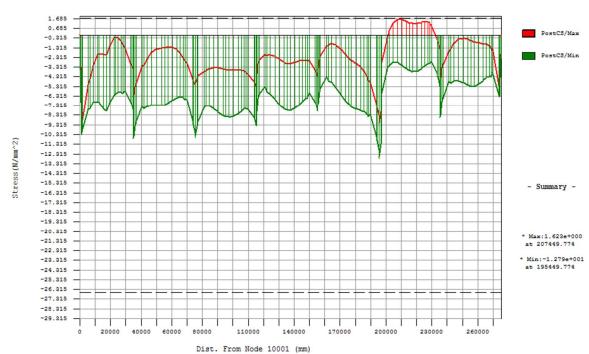
Stress, CBall: Service I-b overload / Combined(+y,+z)

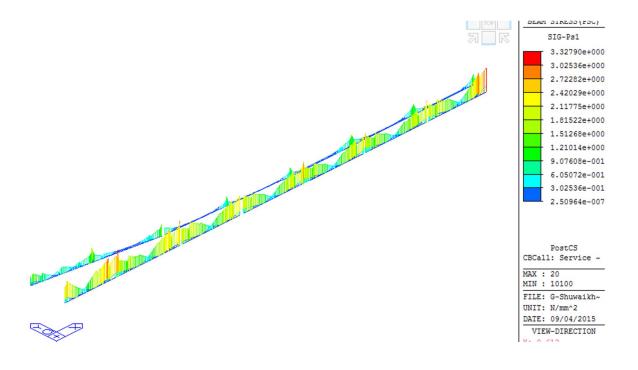






Stress, CBall: Service I-b overload / Combined(+y,-z)





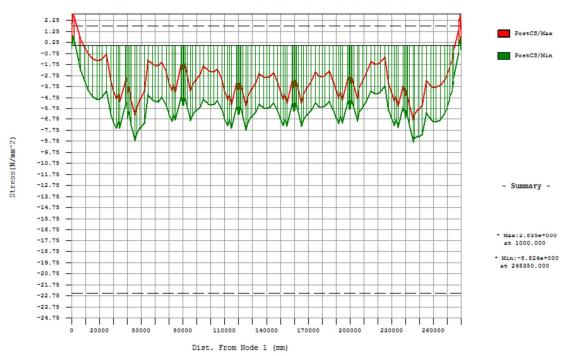
#### 7.3 SLS III (tensile stress checking)

#### 7.3.1 normal live load

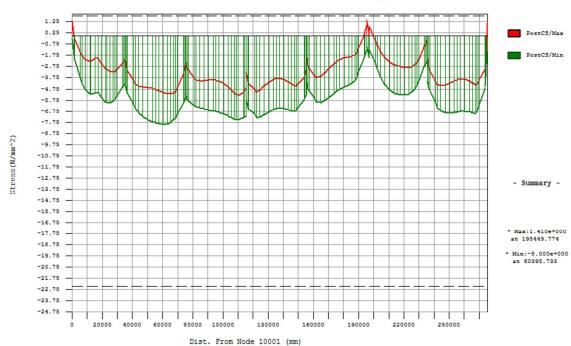
Top stress (limit= 1.76 N/mm2 for no joint, 0 N/mm2 for joint) Check results: OK

#### Central

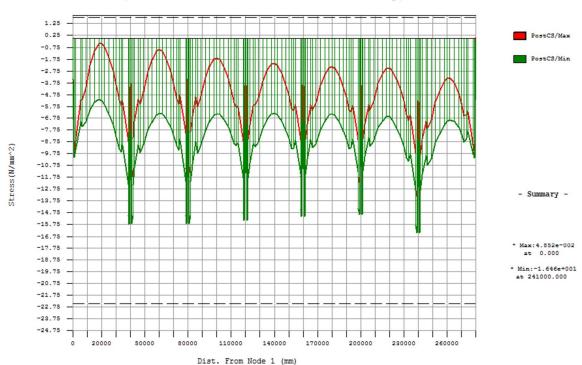




Stress, CBall: Service III normal / Combined(+y,+z)

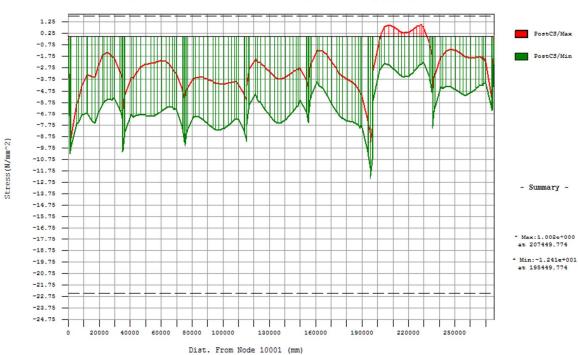


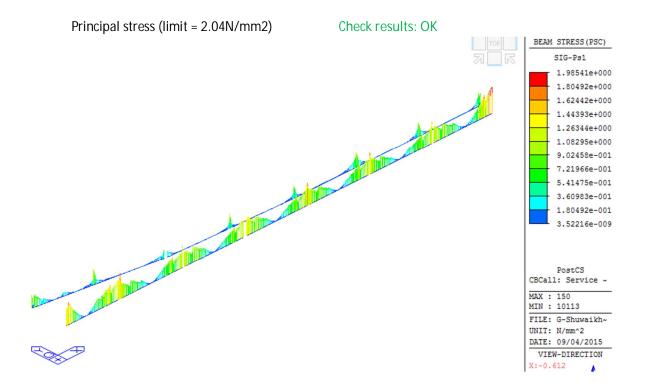




#### Enlargement

#### Stress, CBall: Service III normal / Combined(+y,-z)



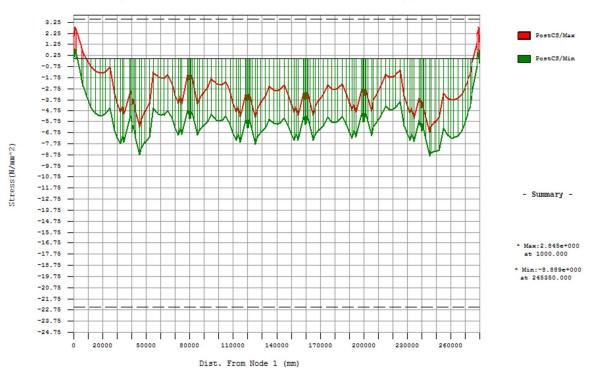


#### 7.3.2 overload

Top stress (limit= 3.54 N/mm2 for no joint, 0 N/mm2 for joint) Check results: OK

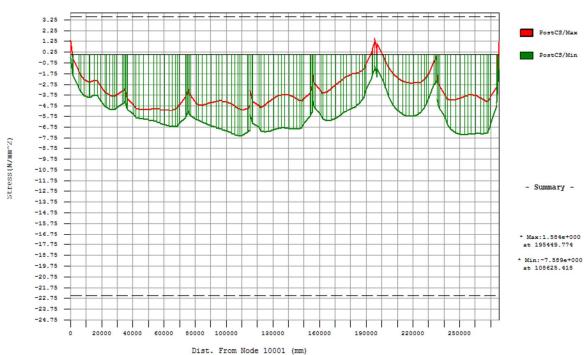
#### Central

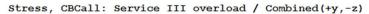


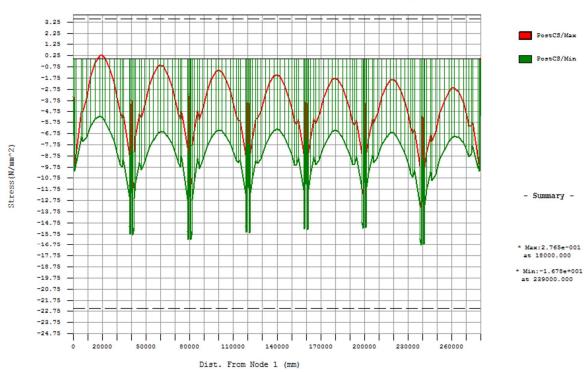


#### Enlargement

#### Stress, CBCall: Service III overload / Combined(+y,+z)

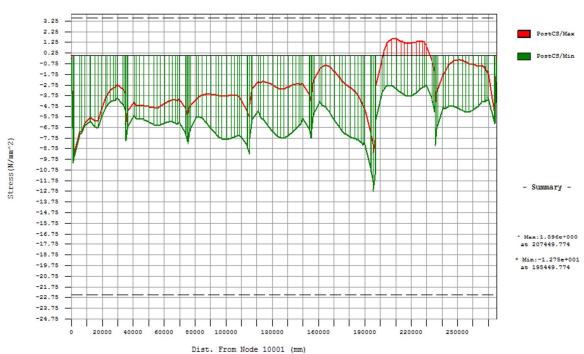




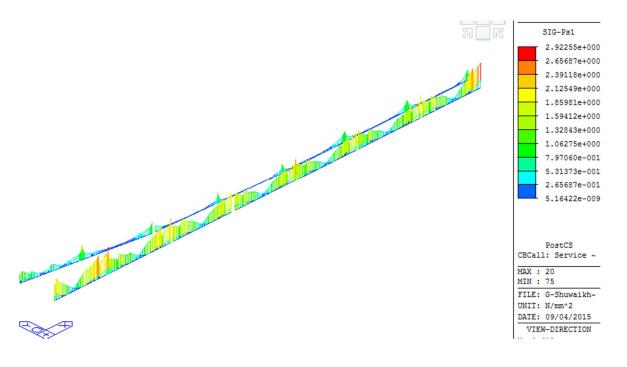


#### Enlargement

#### Stress, CBCall: Service III overload / Combined(+y,-z)



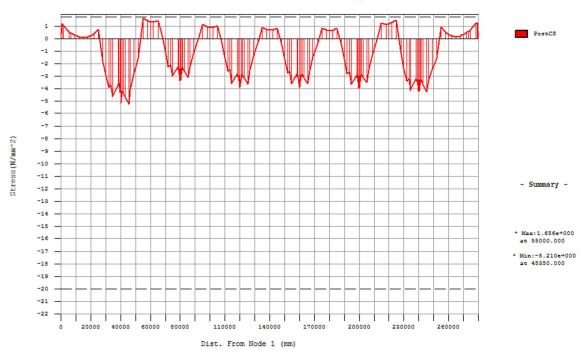
Check results: OK



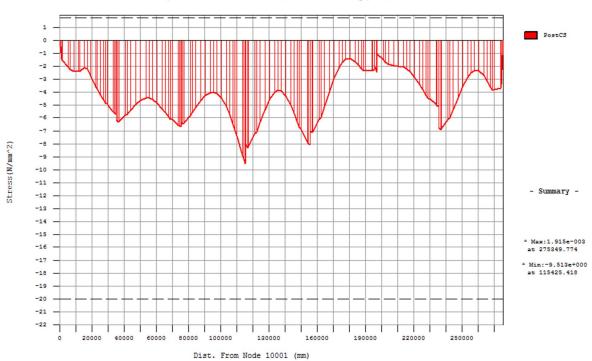
## 7.4 SLS VI (additional compressive stress checking) Top stress (limit = 20.00 N/mm2) Check results: OK

Central

Stress, CBC: Service VI / Combined(+y,+z)



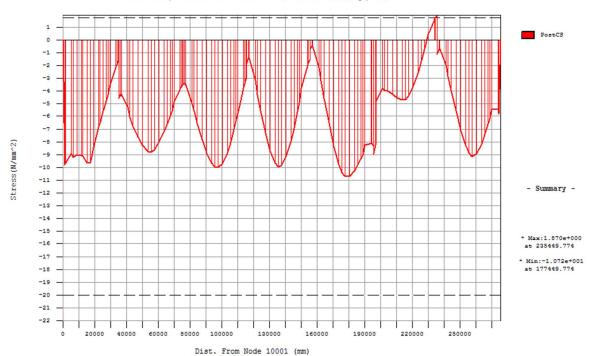
Stress, CBC: Service VI / Combined(+y,+z)



Stress, CBC: Service VI / Combined(+y,-z)



Stress, CBC: Service VI / Combined(+y,-z)



# The summaries of checking for SLS can be shown below. Compressive stress

	Load case	Equation	Locations	Normal load stress limit	Stress by Analysis	Checking
	Dead load	0.45f'c	upper fiber	22.50	8.27	OK
	Dead load	0.451 C	lower fiber	22.50	14.67	OK
SLS I (normal	Dead load + live load	0.6 φ f'c	upper fiber	22.50	8.92	OK
load)	Dead load + live load	0.0 ψ1 0	lower fiber	24.22	17.24	OK
SLS I (over	Dead load + live load	0.6 φ f'c	upper fiber	24.75	9.00	OK
load)	Dead load + live load	υ.υ φι υ	lower fiber	26.65	17.28	OK
SLS VI (normal	Dead load + live load	0.4f'c	upper fiber	20.00	9.51	OK
load)	Deau Ioau + IIve Ioau	0.41 0	lower fiber	20.00	16.63	OK

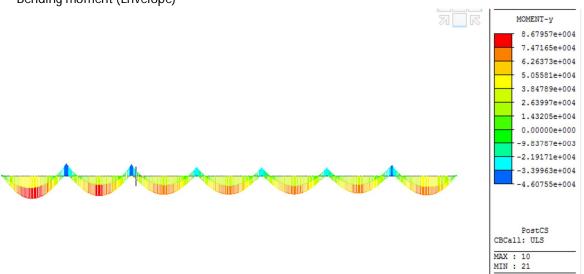
#### Tensile stress

	Load case	Locations	limitation	Checking
	Dead load	upper fiber	1.77	OK
	Deau Ioau	lower fiber	1.77	OK
SLS III (normal		upper fiber (over	1.77	
load)	Dead load + live load	support)	,,	OK
		lower fiber	1.77	OK
SLS III (over	Dead load + live load	upper fiber	3.54	OK
load)	Deau Ioau + IIve Ioau	lower fiber	3.54	OK

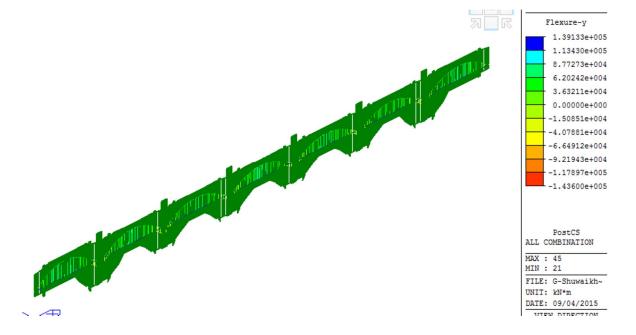
### Principal stress

	Load case	Locations	limitation	Checking
	Dead load	Neutral axis at web	2.04	OK
SLS III (normal load)	Dead load + live load	Neutral axis at web	2.04	OK
SLS III (over load)	Dead load + live load	Neutral axis at web	2.04	OK

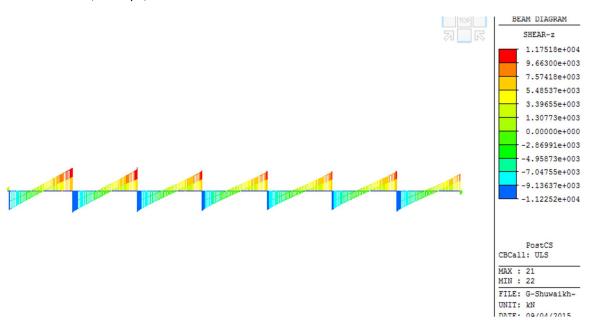
8. ULS checking – Flexure Strength Bending moment (Envelope)

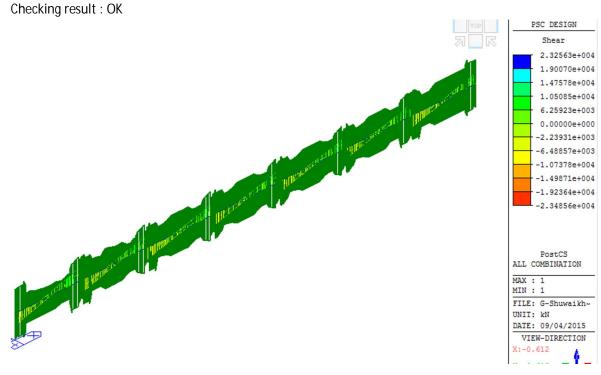


Checking result : OK

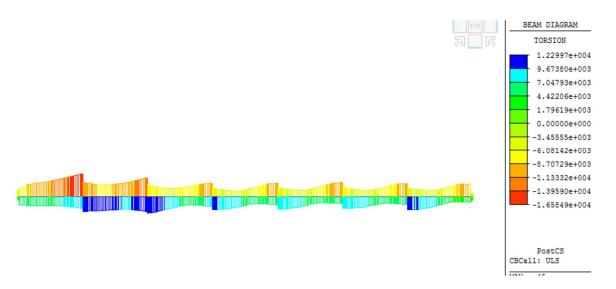


9. ULS checking – Shear Strength Shear Force (Envelope)





 ULS checking – Torsion Strength Torsion moment (Envelope)



For all sections, Torsion  $T_u \le 0.25T_{cr}$ , Ignore Torsional Effects, according to 5.8.2.1. For details, please refer to appendix A.

# Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project Main Link – Contract RA/140



# DETAILED DESIGN - SHUWAIKH PORT INTERCHANGE P(72) - P(A0) GENERAL, CONCRETE OUTLINE & LONGITUDINAL PRESTRESSING - DRAWINGS PACKAGE

Drawing package No.: RA140-22-BRG-CW-DW-22300-B1

Codo	Davisia.	Data	Tials 4	Tid - 3	Title 2	Title 4	Commont
Code	Revision	Date	Title 1	Title 2	Title 3	Title 4	Comment
RA140-22-BRG-CW-DW-22301	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	GENERAL NOTE - BRIDGES			Updated as per ER Comments
RA140-22-BRG-CW-DW-22302	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	GENERAL NOTE - BRIDGES	OVERLAP & TENSION DEVELOPMENT LENGTHS		Updated as per ER Comments
RA140-22-BRG-CW-DW-22305	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	GENERAL ARRANGEMENT	PLAN & ELEVATION		Updated as per ER Comments
RA140-22-BRG-CW-DW-22306	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	GENERAL ARRANGEMENT	SECTIONS - 1/2		
RA140-22-BRG-CW-DW-22307	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	GENERAL ARRANGEMENT	SECTIONS - 2/2		
RA140-22-BRG-CW-DW-22311	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	DECK OUTLINE LAYOUT	(7x40M) STRUCTURE - P72 TO P(A0)		Updated as per ER Comments
RA140-22-BRG-CW-DW-22312	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	DECK OUTLINE LAYOUT	SECTIONS - 1/2		
RA140-22-BRG-CW-DW-22313	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	DECK OUTLINE LAYOUT	SECTIONS - 2/2		
RA140-22-BRG-CW-DW-22315	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P72-P73	PLAN VIEW	
RA140-22-BRG-CW-DW-22316	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P72-P73	PLAN VIEW	Updated as per ER Comments
RA140-22-BRG-CW-DW-22317	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P73-P74	PLAN VIEW	
RA140-22-BRG-CW-DW-22318	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P73-P74	PLAN VIEW	Updated as per ER Comments
RA140-22-BRG-CW-DW-22319	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P74-P75	PLAN VIEW	
RA140-22-BRG-CW-DW-22320	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P74-P75	PLAN VIEW	Updated as per ER Comments
RA140-22-BRG-CW-DW-22321	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P75-P76	PLAN VIEW	
RA140-22-BRG-CW-DW-22322	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P75-P76	PLAN VIEW	
RA140-22-BRG-CW-DW-22323	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P76-P77	PLAN VIEW	
RA140-22-BRG-CW-DW-22324	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P76-P77	PLAN VIEW	
RA140-22-BRG-CW-DW-22325	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P77-P78	PLAN VIEW	
RA140-22-BRG-CW-DW-22326	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P77-P78	PLAN VIEW	
RA140-22-BRG-CW-DW-22327	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-1 & DECK-3	PRECAST & CAST IN-SITU SPAN P78-P(A0)	PLAN VIEW	
RA140-22-BRG-CW-DW-22328	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE - DECK-2 & DECK-4	PRECAST & CAST IN-SITU SPAN P78-P(A0)	PLAN VIEW	
RA140-22-BRG-CW-DW-22329	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	ELEVATION VIEW - 1/2	
RA140-22-BRG-CW-DW-22330	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	ELEVATION VIEW - 2/2	
RA140-22-BRG-CW-DW-22331	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 1/26	
RA140-22-BRG-CW-DW-22332	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 2/26	
RA140-22-BRG-CW-DW-22333	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 3/26	
RA140-22-BRG-CW-DW-22334	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 4/26	
RA140-22-BRG-CW-DW-22335	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 5/26	
RA140-22-BRG-CW-DW-22336	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 6/26	
RA140-22-BRG-CW-DW-22337	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 7/26	
RA140-22-BRG-CW-DW-22338	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 8/26	
RA140-22-BRG-CW-DW-22339	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 9/26	
RA140-22-BRG-CW-DW-22340	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 10/26	







## **Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project** Main Link – Contract RA/140



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RA140-22-BRG-CW-DW-22341	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 11/26	
RA140-22-BRG-CW-DW-22342	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 12/26	
RA140-22-BRG-CW-DW-22343	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 13/26	
RA140-22-BRG-CW-DW-22344	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 14/26	
RA140-22-BRG-CW-DW-22345	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 15/26	
RA140-22-BRG-CW-DW-22346	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 16/26	
RA140-22-BRG-CW-DW-22347	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 17/26	
RA140-22-BRG-CW-DW-22348	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 18/26	
RA140-22-BRG-CW-DW-22349	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 19/26	
RA140-22-BRG-CW-DW-22350	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 20/26	
RA140-22-BRG-CW-DW-22351	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 21/26	
RA140-22-BRG-CW-DW-22352	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 22/26	
RA140-22-BRG-CW-DW-22353	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 23/26	
RA140-22-BRG-CW-DW-22354	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 24/26	
RA140-22-BRG-CW-DW-22355	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 25/26	
RA140-22-BRG-CW-DW-22356	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	SECTION - 26/26	
RA140-22-BRG-CW-DW-22357	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	DETAILS - 1/2	
RA140-22-BRG-CW-DW-22358	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONCRETE OUTLINE	PRECAST & CAST IN-SITU SPAN	DETAILS - 2/2	
RA140-22-BRG-CW-DW-22361	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONTINUITY JOINT & SHEAR KEY DETAILS	BEFORE CONTINUITY		Updated as per ER Comments
RA140-22-BRG-CW-DW-22362	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	CONTINUITY JOINT & SHEAR KEY DETAILS	AFTER CONTINUITY		
RA140-22-BRG-CW-DW-22365	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	READY RECKONER-TENDON ARRANGEMENT	SPAN R09(P8)-P73 TO P78-P(A0)	
RA140-22-BRG-CW-DW-22366	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PLAN & ELEVATION - 1/5	
RA140-22-BRG-CW-DW-22367	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PLAN & ELEVATION - 2/5	
RA140-22-BRG-CW-DW-22368	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PLAN & ELEVATION - 3/5	
RA140-22-BRG-CW-DW-22369	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PLAN & ELEVATION - 4/5	
RA140-22-BRG-CW-DW-22370	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PLAN & ELEVATION - 5/5	
RA140-22-BRG-CW-DW-22371	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 1/17	
RA140-22-BRG-CW-DW-22372	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 2/17	
RA140-22-BRG-CW-DW-22373	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 3/17	
RA140-22-BRG-CW-DW-22374	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 4/17	
RA140-22-BRG-CW-DW-22375	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 5/17	
RA140-22-BRG-CW-DW-22376	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 6/17	
RA140-22-BRG-CW-DW-22377	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 7/17	
RA140-22-BRG-CW-DW-22378	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 8/17	
RA140-22-BRG-CW-DW-22379	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 9/17	
RA140-22-BRG-CW-DW-22380	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 10/17	
RA140-22-BRG-CW-DW-22381	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 11/17	
RA140-22-BRG-CW-DW-22382	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 12/17	
RA140-22-BRG-CW-DW-22383	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 13/17	
RA140-22-BRG-CW-DW-22384	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 14/17	
RA140-22-BRG-CW-DW-22385	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 15/17	
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## **Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project** Main Link – Contract RA/140



MAIN   12 SECTION   12 SECTIO		1						T
MAINTENNESS   ALCOHOLOGICAL   PART TERROR SHAPE MERCEN   PART TERROR SHAP	RA140-22-BRG-CW-DW-22386	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 16/17	
MAIN   19   90   12   12   12   12   12   12   12   1	RA140-22-BRG-CW-DW-22387	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	SECTIONS - 17/17	
\$26.00 2 BRIG CV DV 2286. \$2.00 12 BRIG CV DV 2287. \$2.00 12 BRIG CV DV 2288. \$2.00 12 BRIG CV D	RA140-22-BRG-CW-DW-22388	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PRESTRESSING SUMMARY	
ALTO STATE CONTROL AND ADDRESS   SHAPP AND SHAPP AND ADDRESS   PROSTERIOR ADDRESS   PROSTER	RA140-22-BRG-CW-DW-22389	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-4	POST-TENSION - SPAN R09(P8)-P73 TO P78-P(A0)	PRESTRESSING SEQUENCE	
Mail	RA140-22-BRG-CW-DW-22395	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	READY RECKONER-TENDON ARRANGEMENT	SPAN R07(P1)-P73 TO P78-P(A0)	
MAIN DESCRIPTION 2798   1	RA140-22-BRG-CW-DW-22396	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PLAN & ELEVATION - 1/5	
MAI 1022-88G CW 0W 3248   A1	RA140-22-BRG-CW-DW-22397	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PLAN & ELEVATION - 2/5	
ALI	RA140-22-BRG-CW-DW-22398	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PLAN & ELEVATION - 3/5	
MAIN 22 MIG CW DW 22400   A2	RA140-22-BRG-CW-DW-22399	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PLAN & ELEVATION - 4/5	
MARIO 22 BRG CW DW 22402   A2	RA140-22-BRG-CW-DW-22400	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PLAN & ELEVATION - 5/5	
MAID-22-BRG-CV-DV-22401   A2   24-07-15   SHUWAIKH PORT INTERCHANGE PTZ - PAGD   PRESTRESSING _LONGTUDINAL _DECK.3   POST-TRISSON _SPAN ROTPO]-PT3 TO PTS-PAGD   SECTIONS - 3/22	RA140-22-BRG-CW-DW-22401	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 1/22	
EALIO 22 BRG CW DW 22401	RA140-22-BRG-CW-DW-22402	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 2/22	
### ### ### ### ### ### ### ### ### ##	RA140-22-BRG-CW-DW-22403	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 3/22	
RAL10-22-88G-CW-DW-22407   A2   24-07-15   SHUWAIKH PORT INTERCHANGE P72 - PIAO)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7[P1]-P73 TO P78-PIAO)   SECTIONS - 6/22	RA140-22-BRG-CW-DW-22404	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 4/22	
RA140-22-8RG-CW-DW-22408	RA140-22-BRG-CW-DW-22405	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 5/22	
No.   14.0-22-8RG-CW-DW-22408   A2   24-07-15   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 9/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS - 1/22   SHUWAIKH PORT INTERCHANGE PT2 - P(AI)   PRESTRESSING - LONGTUDINAL - DECK-3   POST-TENSION - SPAN RO7(P)-P73 TO P78-P(AI)   SECTIONS	RA140-22-BRG-CW-DW-22406	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 6/22	
RA140 22-8RG CW-DW-22409 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 10/22 RBC-DW-DW-22411 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 10/22 RBC-DW-DW-22412 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 11/22 RBC-DW-DW-22413 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 13/22 RBC-DW-DW-22414 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 13/22 RBC-DW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 13/22 RBC-DW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 14/22 RBC-DW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 14/22 RBC-DW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22 RBC-DW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22 RBC-DW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22 RBC-DW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 10/22 RBAL022-RBC-DW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCH	RA140-22-BRG-CW-DW-22407	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 7/22	
RA140 22 BRG CW- DW-22410 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22412 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22413 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22414 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 11/22 RA140 22 BRG CW- DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 15/22 RA140 22 BRG CW- DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 15/22 RA140 22 BRG CW- DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 15/22 RA140 22 BRG CW- DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 15/22 RA140 22 BRG CW- DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(AD) SECTIONS - 15/22 RA140 22 BRG CW- DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(AD) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TEN	RA140-22-BRG-CW-DW-22408	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 8/22	
RA140-22-BRG-CW-DW-22411   A2   24-07-15   SHUWAIKH PORT INTERCHANGE P72 - P(AD)   PRESTRESSING - LONGITUDINAL - DECK-3   POST-TENSION - SPAN R07/P1)-P73 TO P78-P(AD)   SECTIONS - 11/22	RA140-22-BRG-CW-DW-22409	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 9/22	
RA140-22-BRG-CW-DW-22412 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 13/22  RA140-22-BRG-CW-DW-22414 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 13/22  RA140-22-BRG-CW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 14/22  RA140-22-BRG-CW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22  RA140-22-BRG-CW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22  RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22  RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 16/22  RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 18/22  RA140-22-BRG-CW-DW-22410 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 18/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENS	RA140-22-BRG-CW-DW-22410	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 10/22	
RA140 22-BRG-CW-DW-22413 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 13/22   RA140 22-BRG-CW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 15/22   RA140 22-BRG-CW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 15/22   RA140 22-BRG-CW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 15/22   RA140 22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 18/22   RA140 22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 18/22   RA140 22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 18/22   RA140 22-BRG-CW-DW-22420 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 19/22   RA140 22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 20/22   RA140 22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 20/22   RA140 22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY   RA140 22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - D	RA140-22-BRG-CW-DW-22411	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 11/22	
RA140-22-BRG-CW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 14/22  RA140-22-BRG-CW-DW-22416 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 15/22  RA140-22-BRG-CW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 16/22  RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 17/22  RA140-22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 18/22  RA140-22-BRG-CW-DW-22420 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 19/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 19/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY  RA140-22-BRG-CW-DW-22423 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-	RA140-22-BRG-CW-DW-22412	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 12/22	
RA140-22-BRG-CW-DW-22415 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 15/22  RA140-22-BRG-CW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 15/22  RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 15/22  RA140-22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 19/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 19/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22  RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 22/22  RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 22/22  RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22433 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE	RA140-22-BRG-CW-DW-22413	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 13/22	
RA140-22-BRG-CW-DW-22416         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 16/22           RA140-22-BRG-CW-DW-22417         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 17/22           RA140-22-BRG-CW-DW-22418         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 18/22           RA140-22-BRG-CW-DW-22419         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 19/22           RA140-22-BRG-CW-DW-22420         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 29/22           RA140-22-BRG-CW-DW-22421         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 29/22           RA140-22-BRG-CW-DW-22423         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRES	RA140-22-BRG-CW-DW-22414	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 14/22	
RA140-22-BRG-CW-DW-22417 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 17/22 RA140-22-BRG-CW-DW-22418 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 18/22 SECTIONS - 18/22 RA140-22-BRG-CW-DW-22420 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 19/22 SECTIONS - 19/22 RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 21/22 RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 21/22 RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) SECTIONS - 22/22 RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN RO7(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/A Strand Position Updated RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/A STRAND POSITION Updated PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/A STRAND POSITION Updated PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/A STRAND POSITION Updated	RA140-22-BRG-CW-DW-22415	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 15/22	
RA140-22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 18/22 RA140-22-BRG-CW-DW-22419 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 19/22 RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 20/22 RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22 RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 22/22 RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22416	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 16/22	
RA140-22-BRG-CW-DW-22419         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 19/22           RA140-22-BRG-CW-DW-22420         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 20/22           RA140-22-BRG-CW-DW-22421         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 21/22           RA140-22-BRG-CW-DW-22422         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         SECTIONS - 21/22           RA140-22-BRG-CW-DW-22423         A2         24-07-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         PRESTRESSING SUMMARY           RA140-22-BRG-CW-DW-22424         A1         08-06-15         SHUWAIKH PORT INTERCHANGE P72 - P(A0)         PRESTRESSING - LONGITUDINAL - DECK-3         POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)         PRESTRESSING SEQUENCE           RA140-22-BRG-CW-DW-22431         B1         15-01-16         SHUWAIKH PORT INTERCHANGE P72 - P(A0) <td< td=""><td>RA140-22-BRG-CW-DW-22417</td><td>A2</td><td>24-07-15</td><td>SHUWAIKH PORT INTERCHANGE P72 - P(A0)</td><td>PRESTRESSING - LONGITUDINAL - DECK-3</td><td>POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)</td><td>SECTIONS - 17/22</td><td></td></td<>	RA140-22-BRG-CW-DW-22417	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 17/22	
RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 20/22  RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 22/22  RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY  RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated  RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22418	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 18/22	
RA140-22-BRG-CW-DW-22421 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 21/22  RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) SECTIONS - 22/22  RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY  RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated  RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22419	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 19/22	
RA140-22-BRG-CW-DW-22422 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY  RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22421 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated  RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22420	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 20/22	
RA140-22-BRG-CW-DW-22423 A2 24-07-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SUMMARY  RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated  RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22421	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 21/22	
RA140-22-BRG-CW-DW-22424 A1 08-06-15 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL - DECK-3 POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0) PRESTRESSING SEQUENCE  RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated  RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22422	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	SECTIONS - 22/22	
RA140-22-BRG-CW-DW-22431 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 1/4 Strand Position Updated RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22423	A2	24-07-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PRESTRESSING SUMMARY	
RA140-22-BRG-CW-DW-22432 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22424	A1	08-06-15	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL - DECK-3	POST-TENSION - SPAN R07(P1)-P73 TO P78-P(A0)	PRESTRESSING SEQUENCE	
THE STATE OF THE PERSON ST	RA140-22-BRG-CW-DW-22431	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST- PRE TENSION - SPAN P72-P73	END SPAN 40M - 1/4	Strand Position Updated
RA140-22-BRG-CW-DW-22433 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 3/4 Strand Position Updated	RA140-22-BRG-CW-DW-22432	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST- PRE TENSION - SPAN P72-P73	END SPAN 40M - 2/4	Strand Position Updated
	RA140-22-BRG-CW-DW-22433	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST- PRE TENSION - SPAN P72-P73	END SPAN 40M - 3/4	Strand Position Updated
RA140-22-BRG-CW-DW-22434 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST- PRE TENSION - SPAN P72-P73 END SPAN 40M - 4/4 Strand Position Updated	RA140-22-BRG-CW-DW-22434	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST- PRE TENSION - SPAN P72-P73	END SPAN 40M - 4/4	Strand Position Updated
RA140-22-BRG-CW-DW-22435 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78 INTERMEDIATE SPAN 40M - 1/4 Strand Position Updated	RA140-22-BRG-CW-DW-22435	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78	INTERMEDIATE SPAN 40M - 1/4	Strand Position Updated
RA140-22-BRG-CW-DW-22436 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78 INTERMEDIATE SPAN 40M - 2/4 Strand Position Updated	RA140-22-BRG-CW-DW-22436	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78	INTERMEDIATE SPAN 40M - 2/4	Strand Position Updated
RA140-22-BRG-CW-DW-22437 B1 15-01-16 SHUWAIKH PORT INTERCHANGE P72 - P(A0) PRESTRESSING - LONGITUDINAL PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78 INTERMEDIATE SPAN 40M - 3/4 Strand Position Updated	RA140-22-BRG-CW-DW-22437	B1	15-01-16	SHUWAIKH PORT INTERCHANGE P72 - P(A0)	PRESTRESSING - LONGITUDINAL	PRECAST - PRE TENSION - SPAN P73-P74 TO P77-P78	INTERMEDIATE SPAN 40M - 3/4	Strand Position Updated







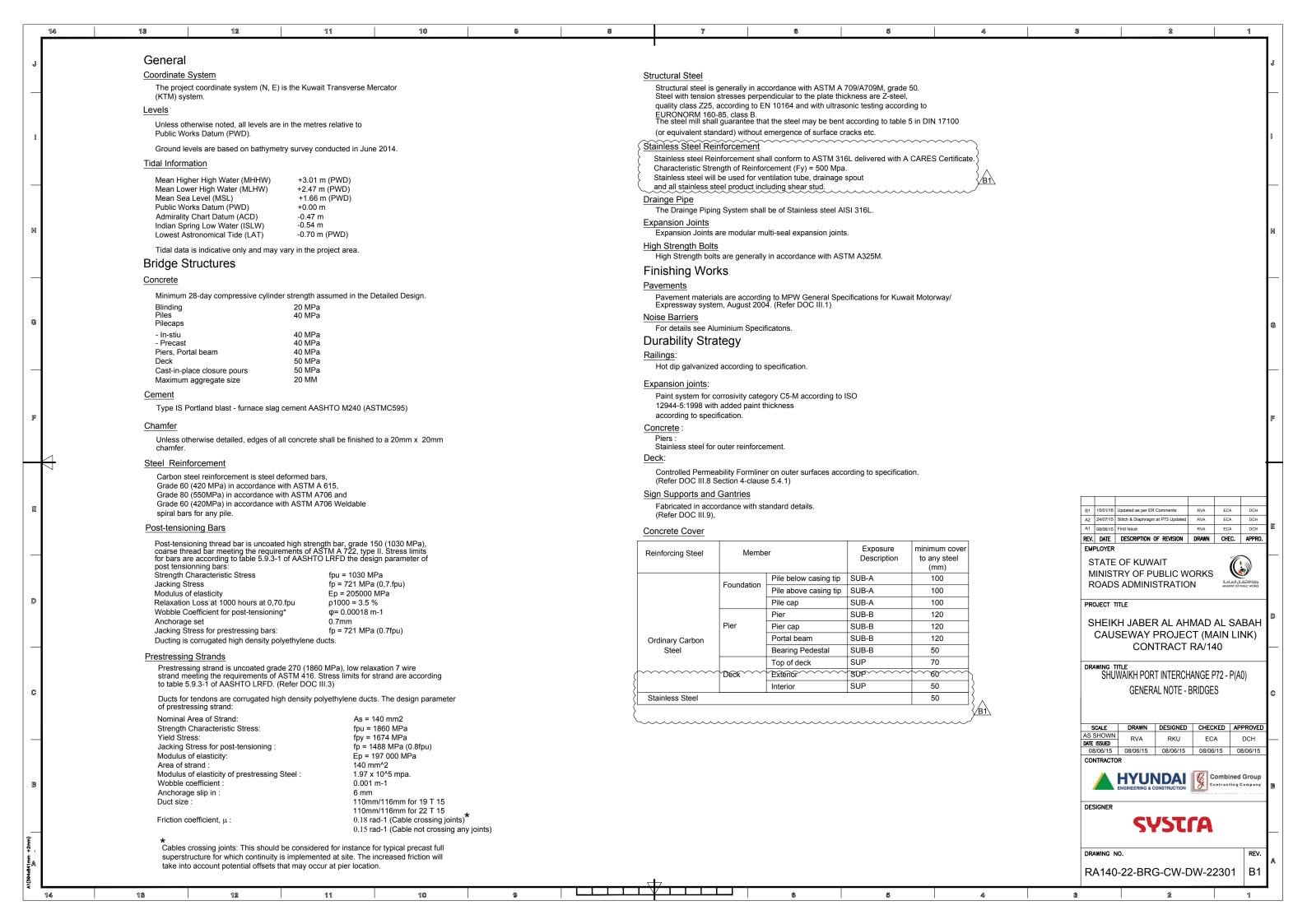
## **Sheikh Jaber Al-Ahmad Al-Sabah Causeway Project** Main Link – Contract RA/140

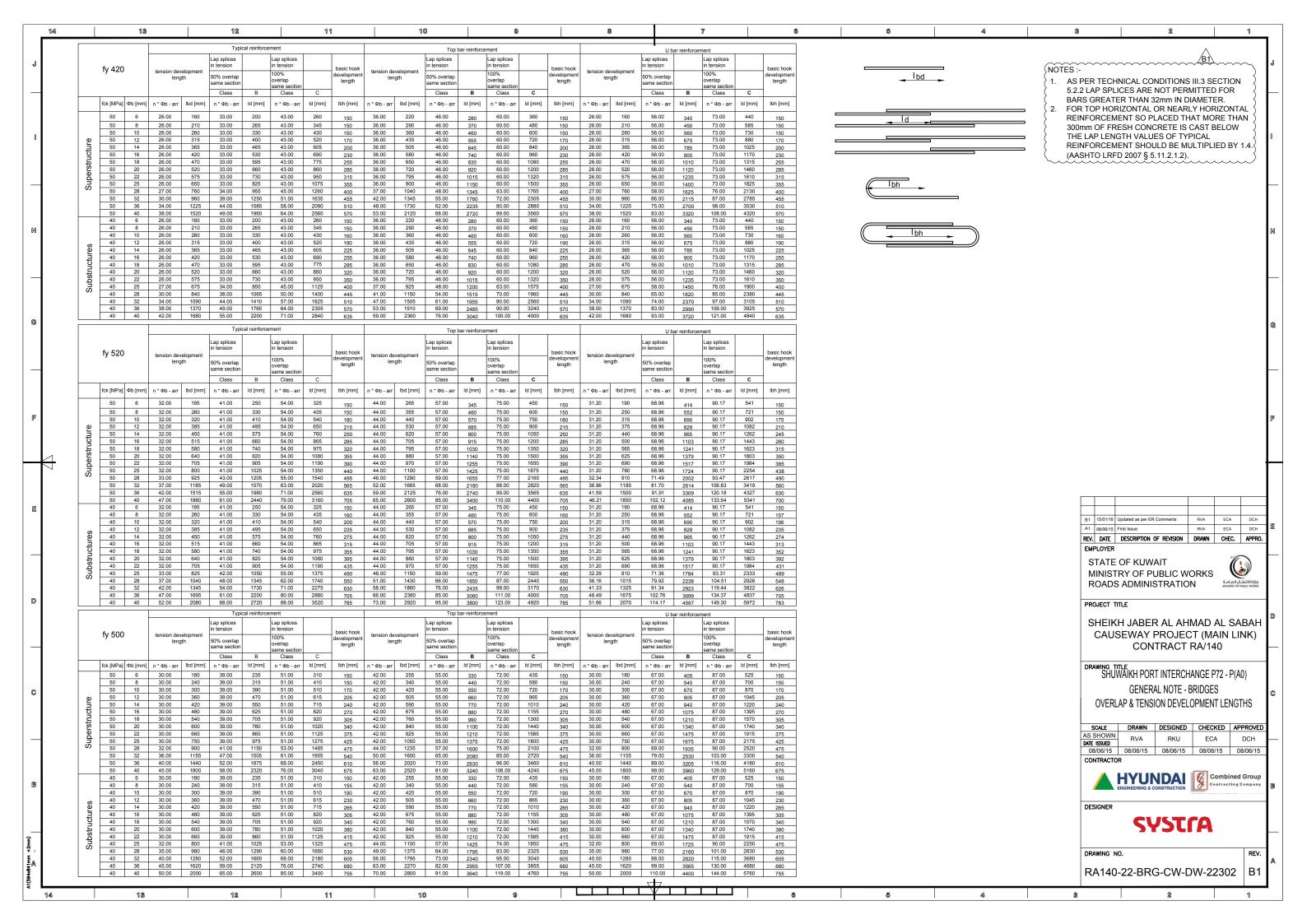


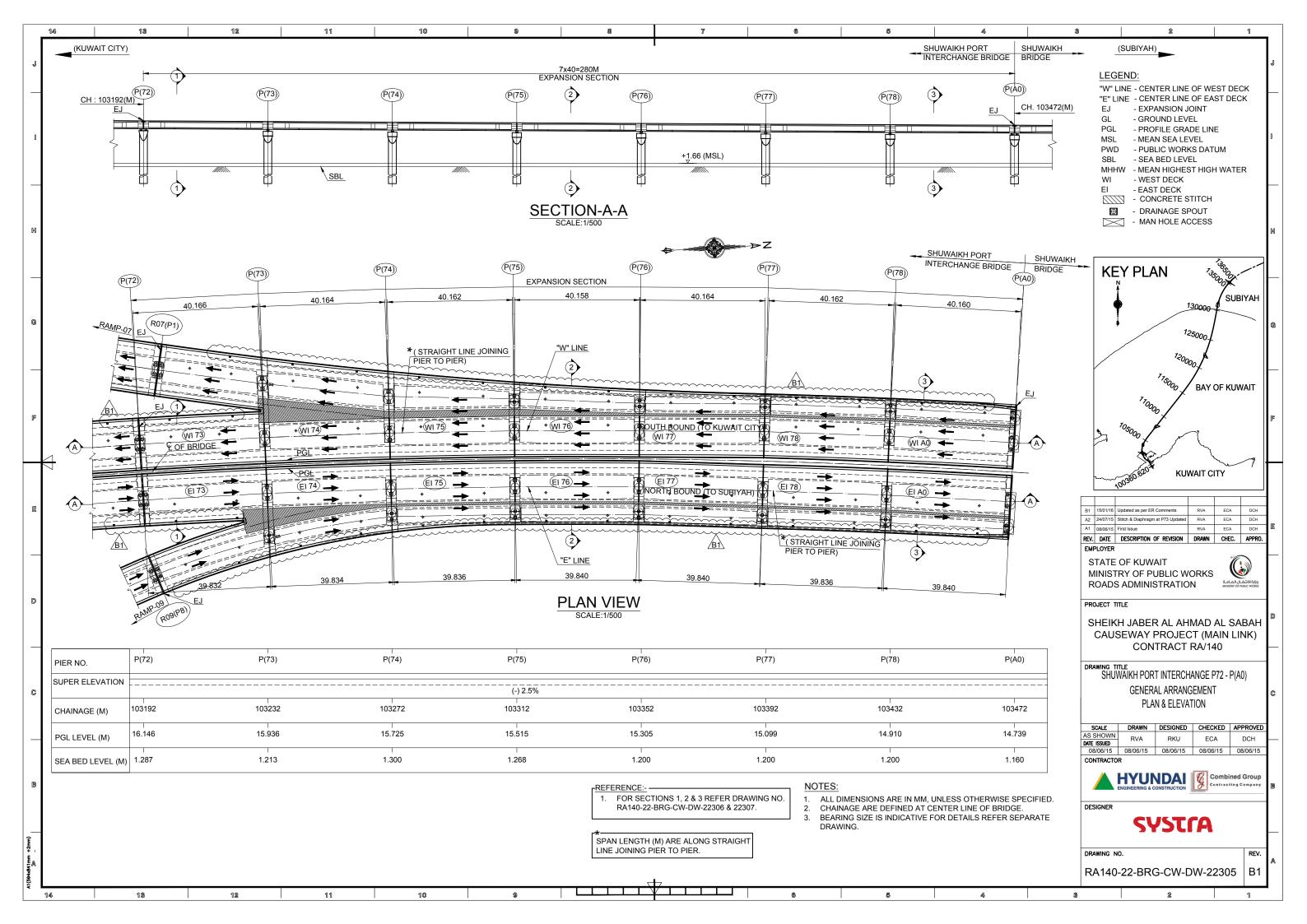
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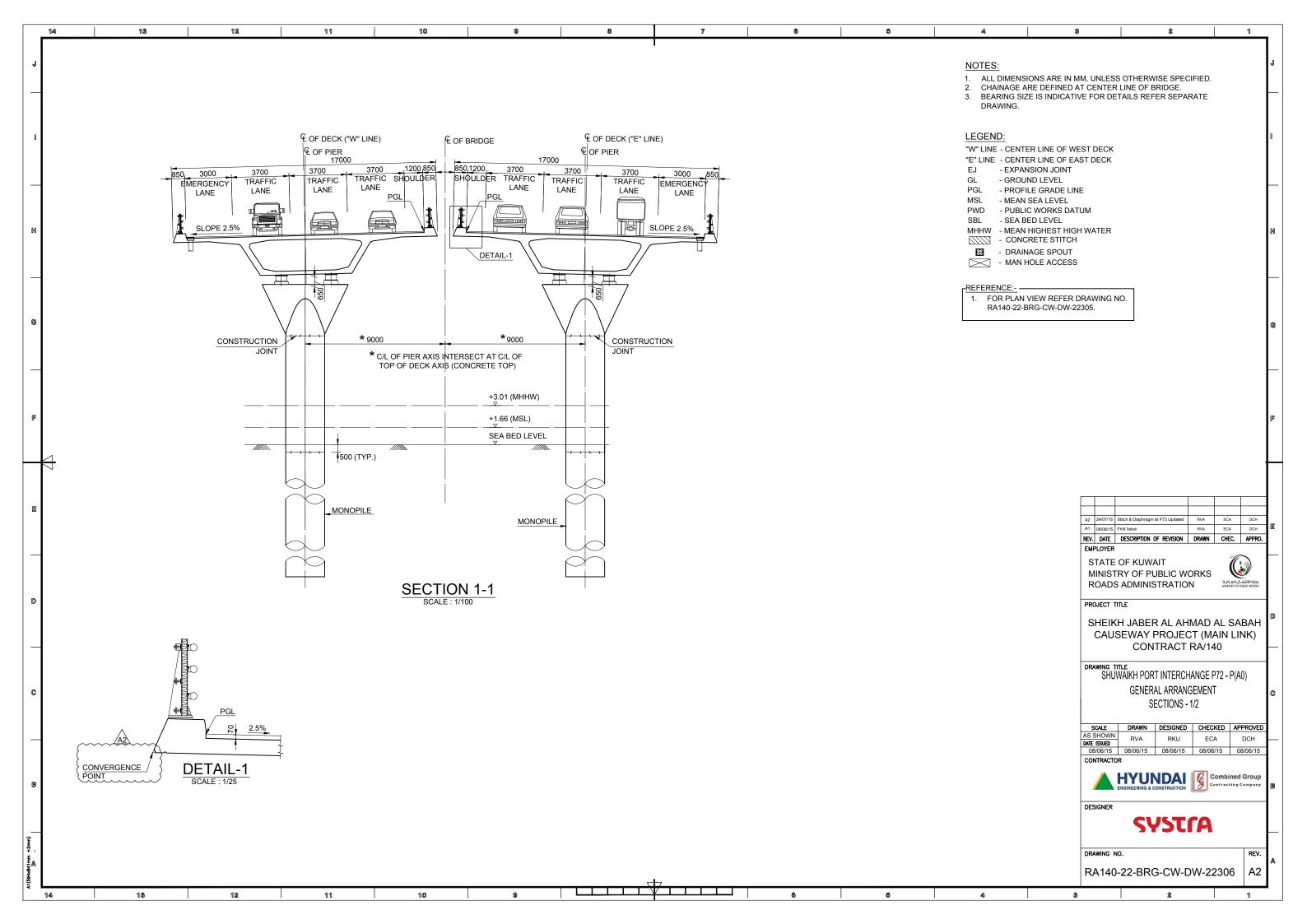


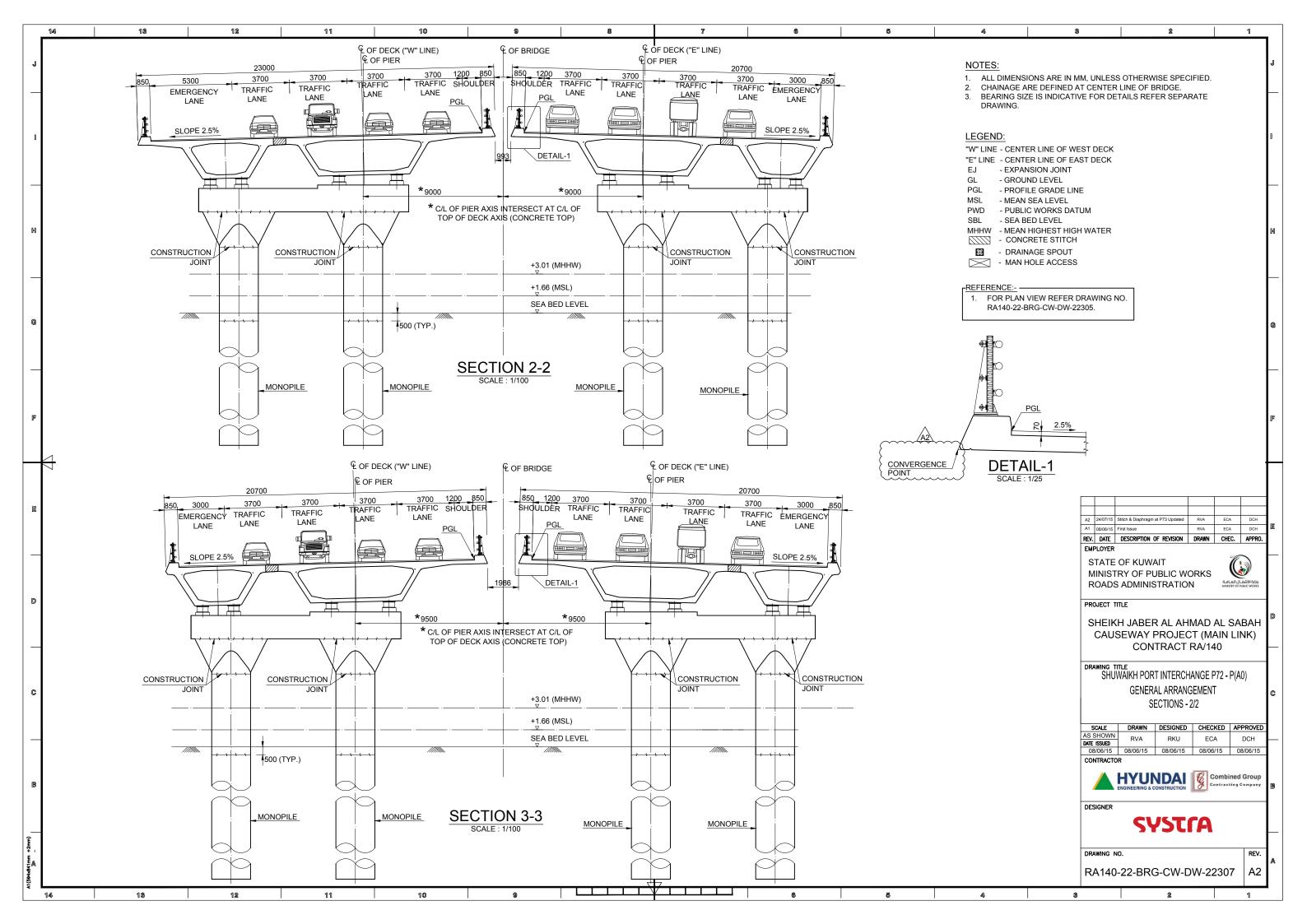


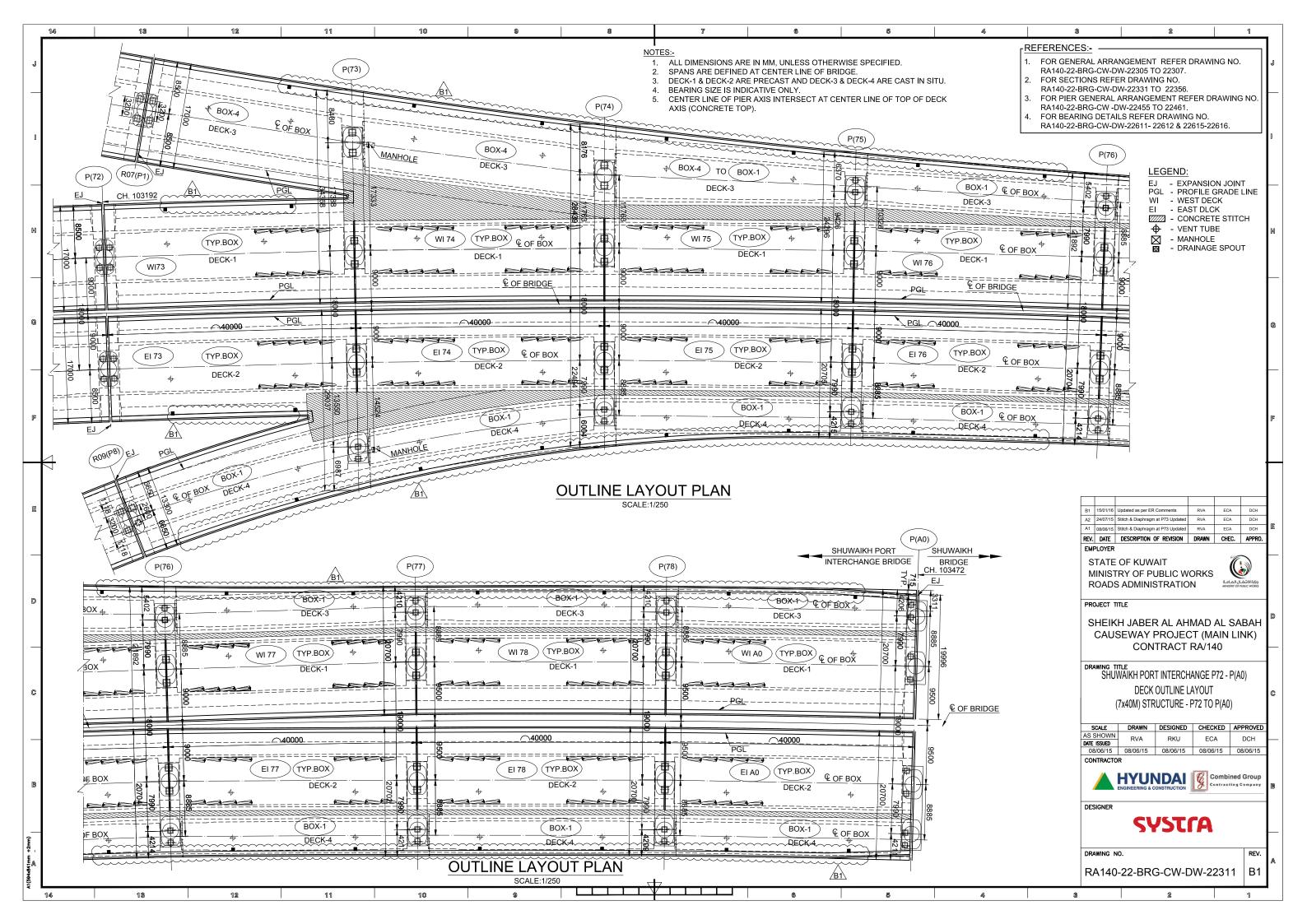


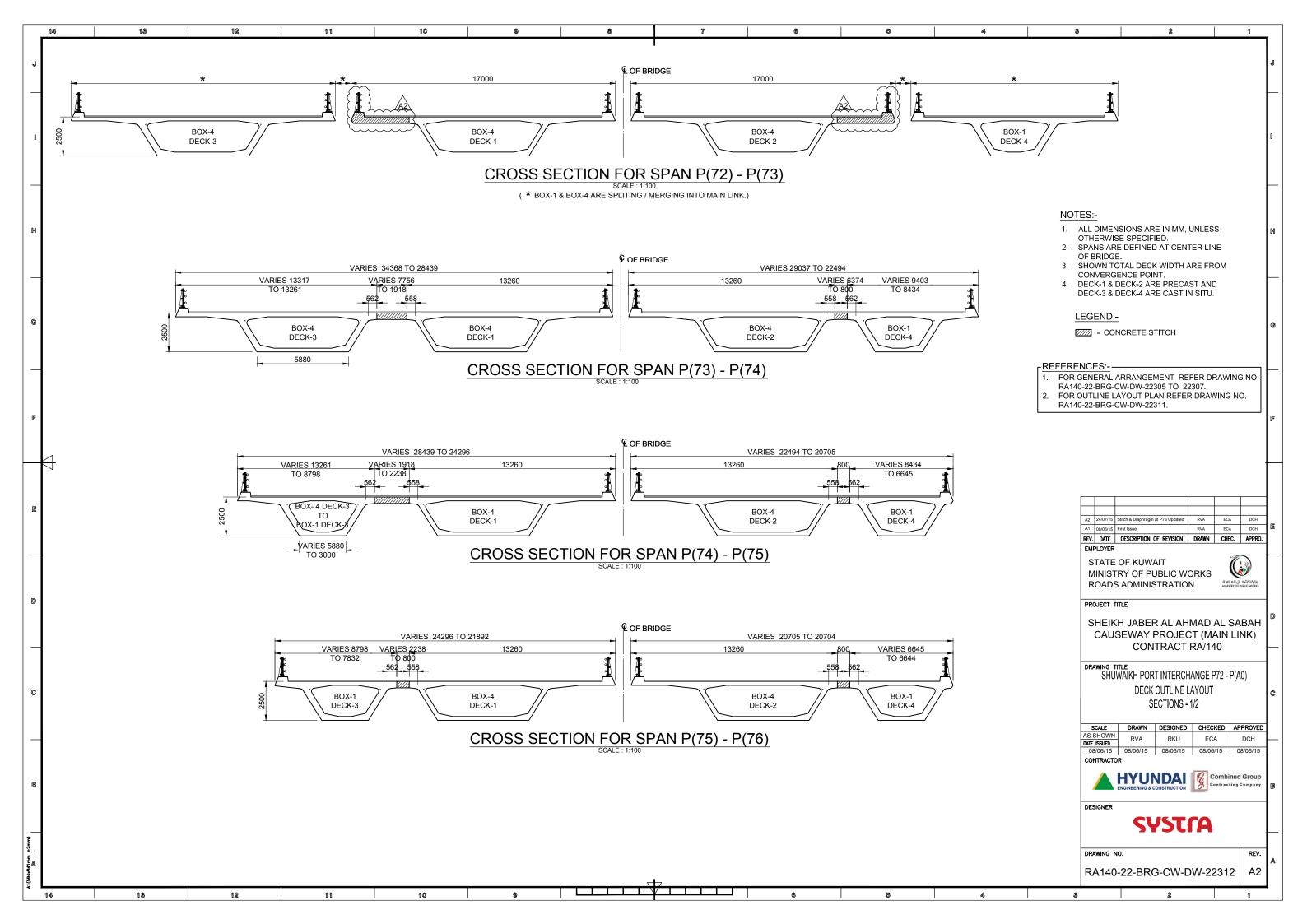


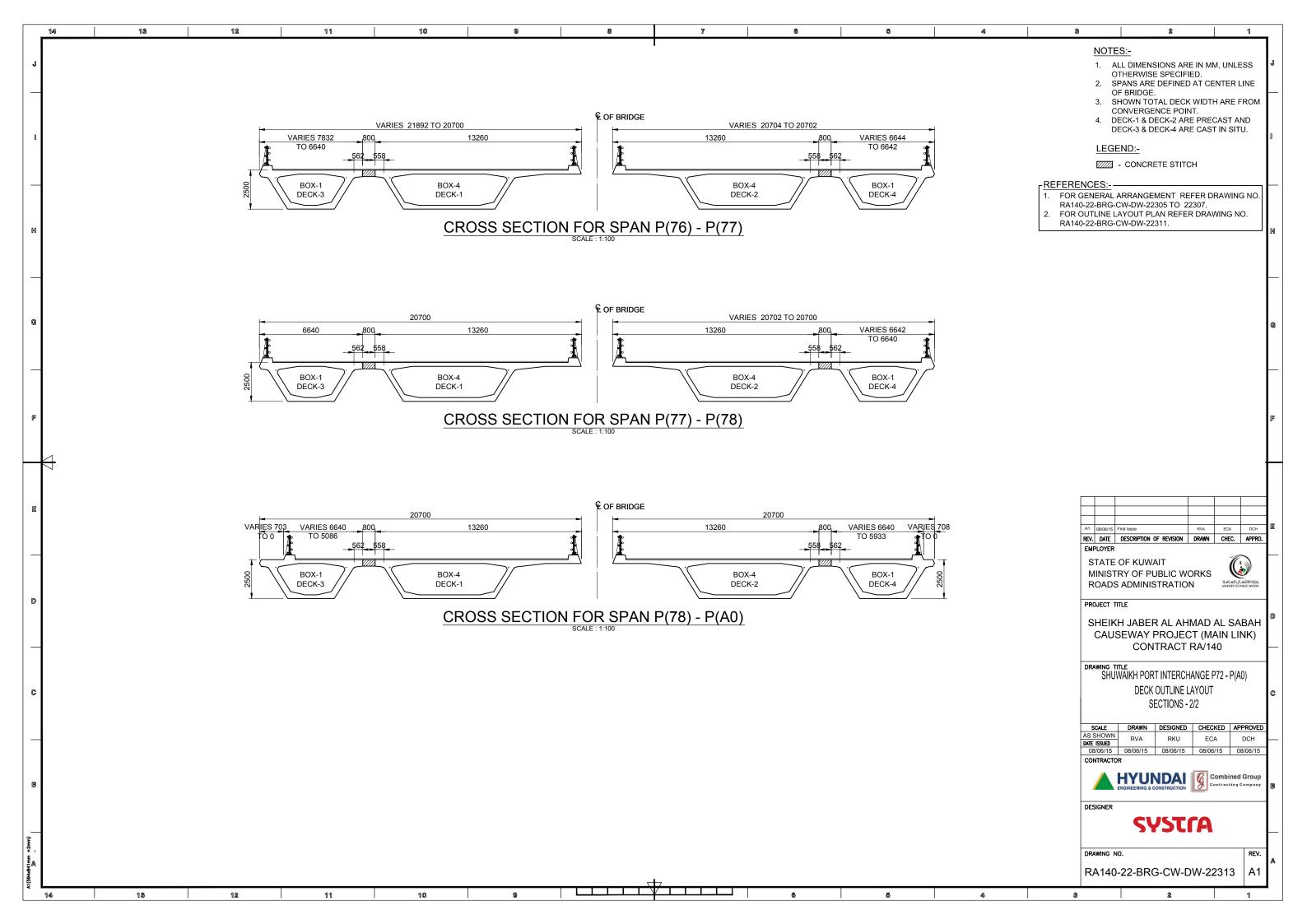


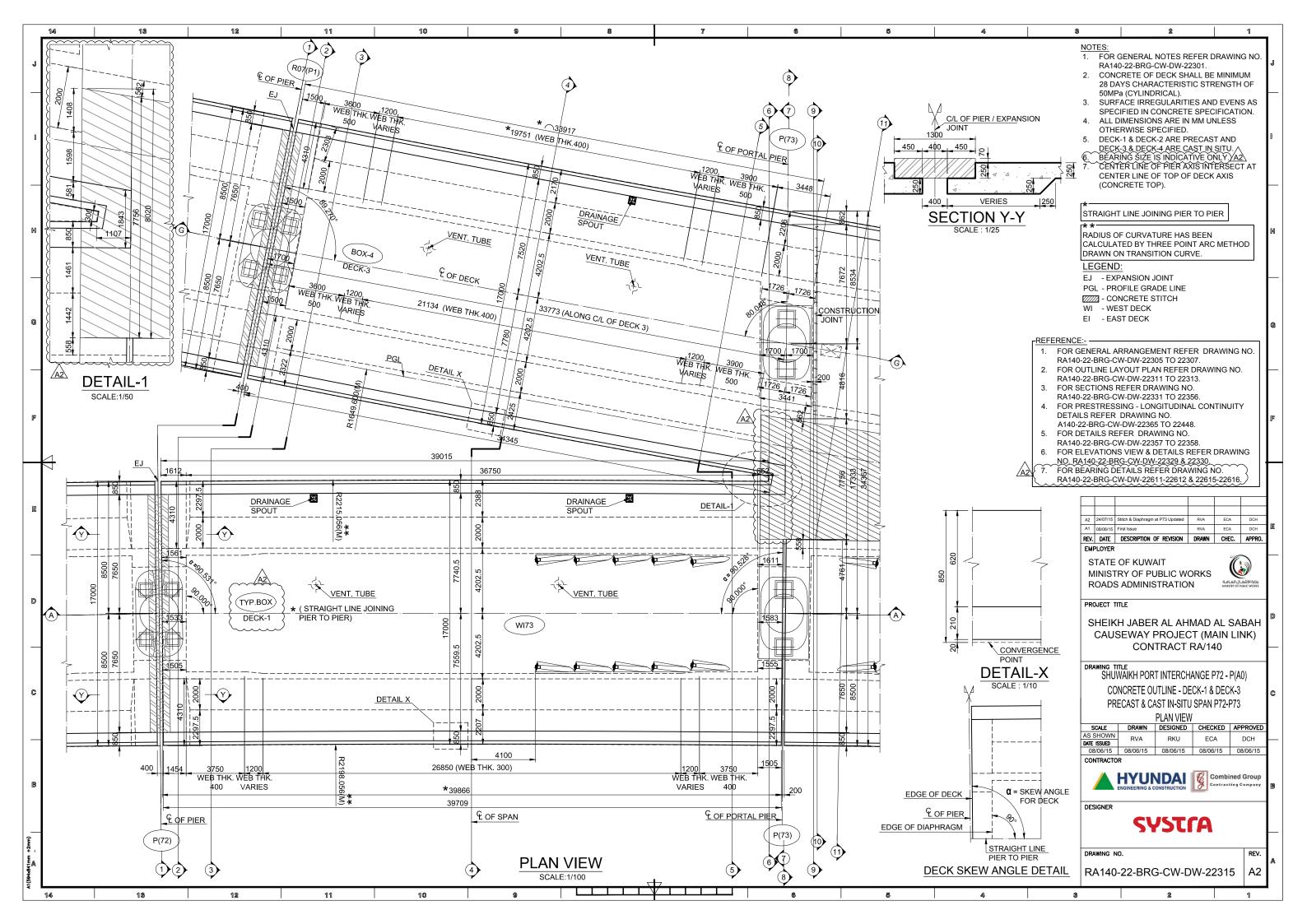


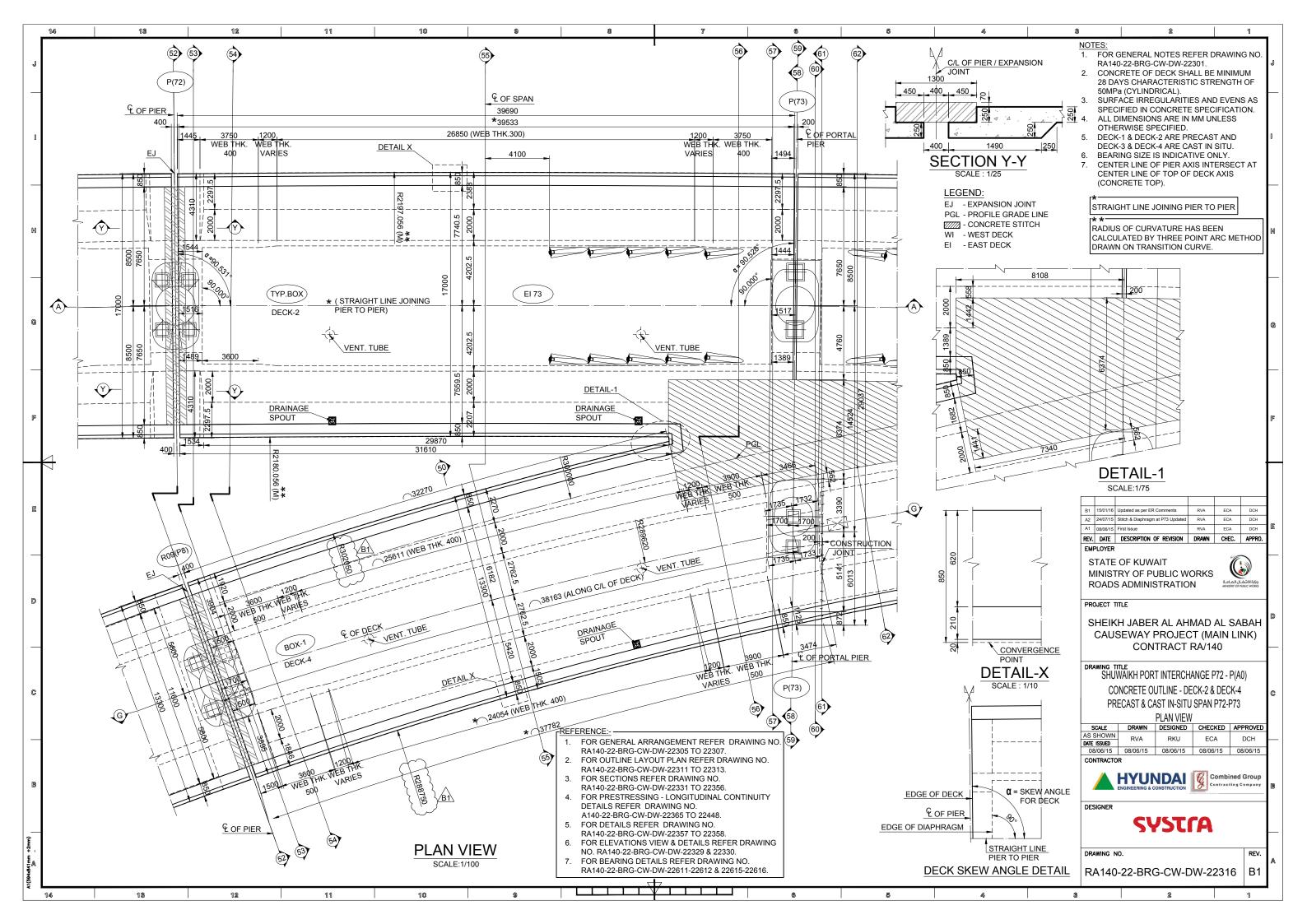


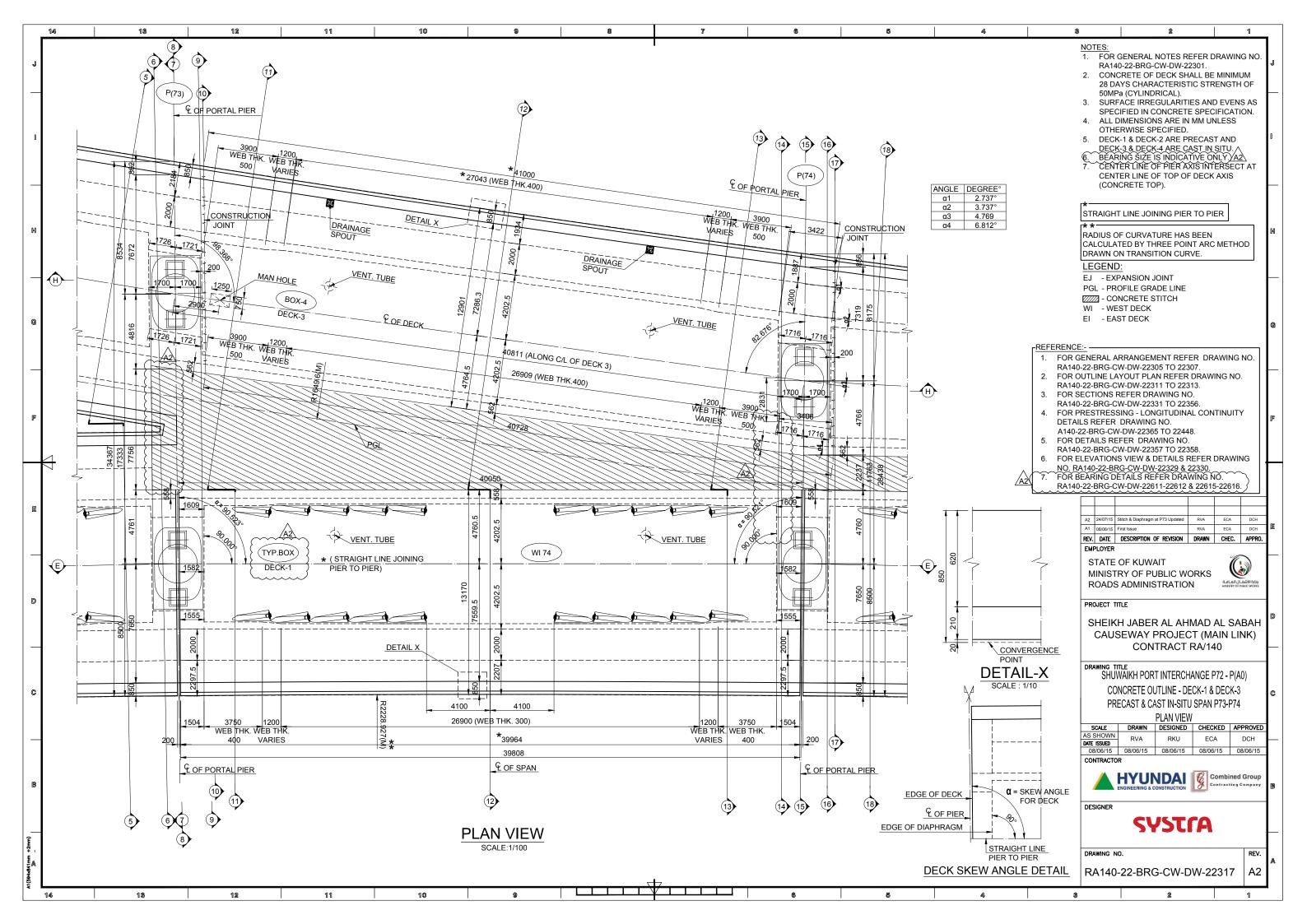


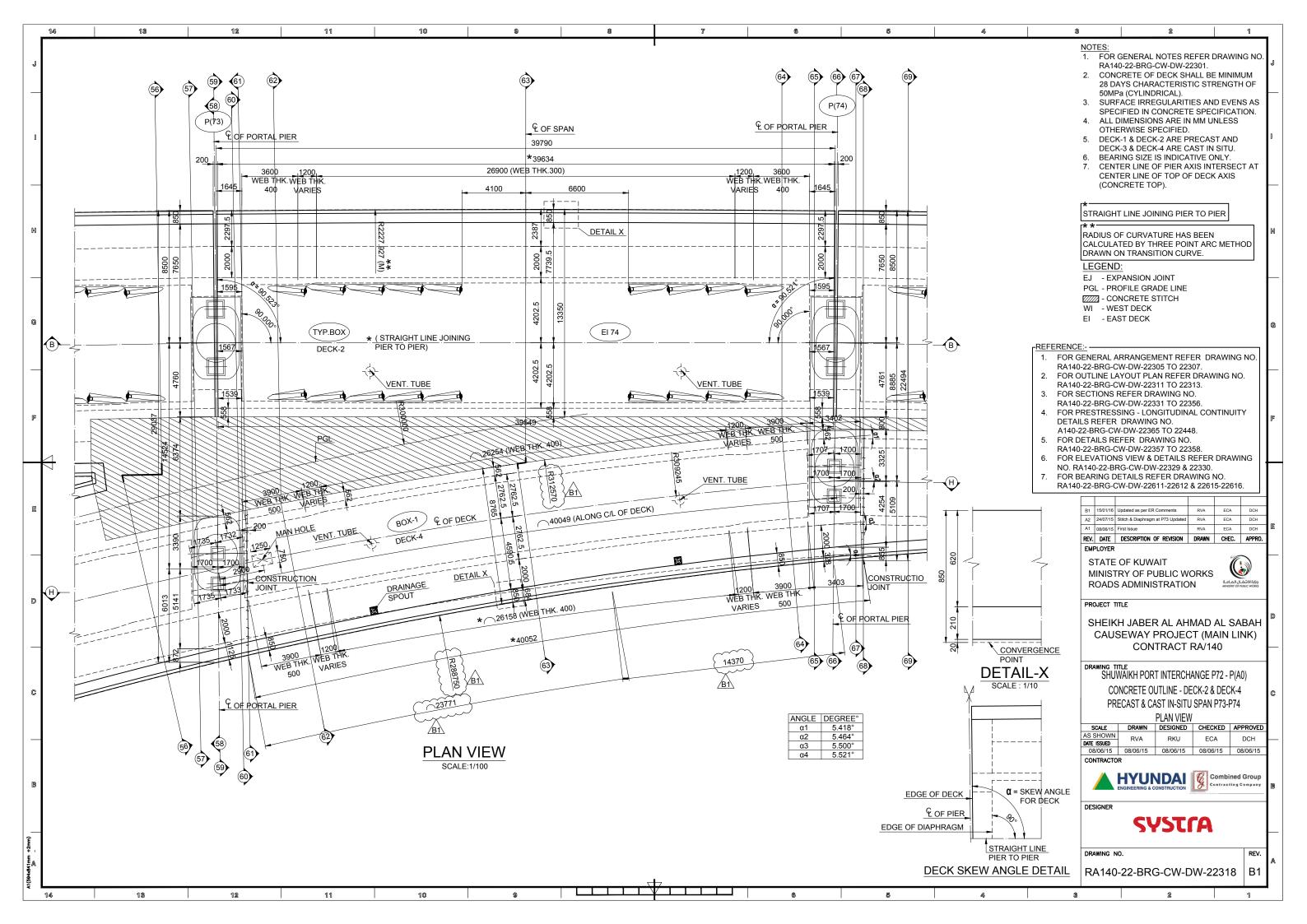


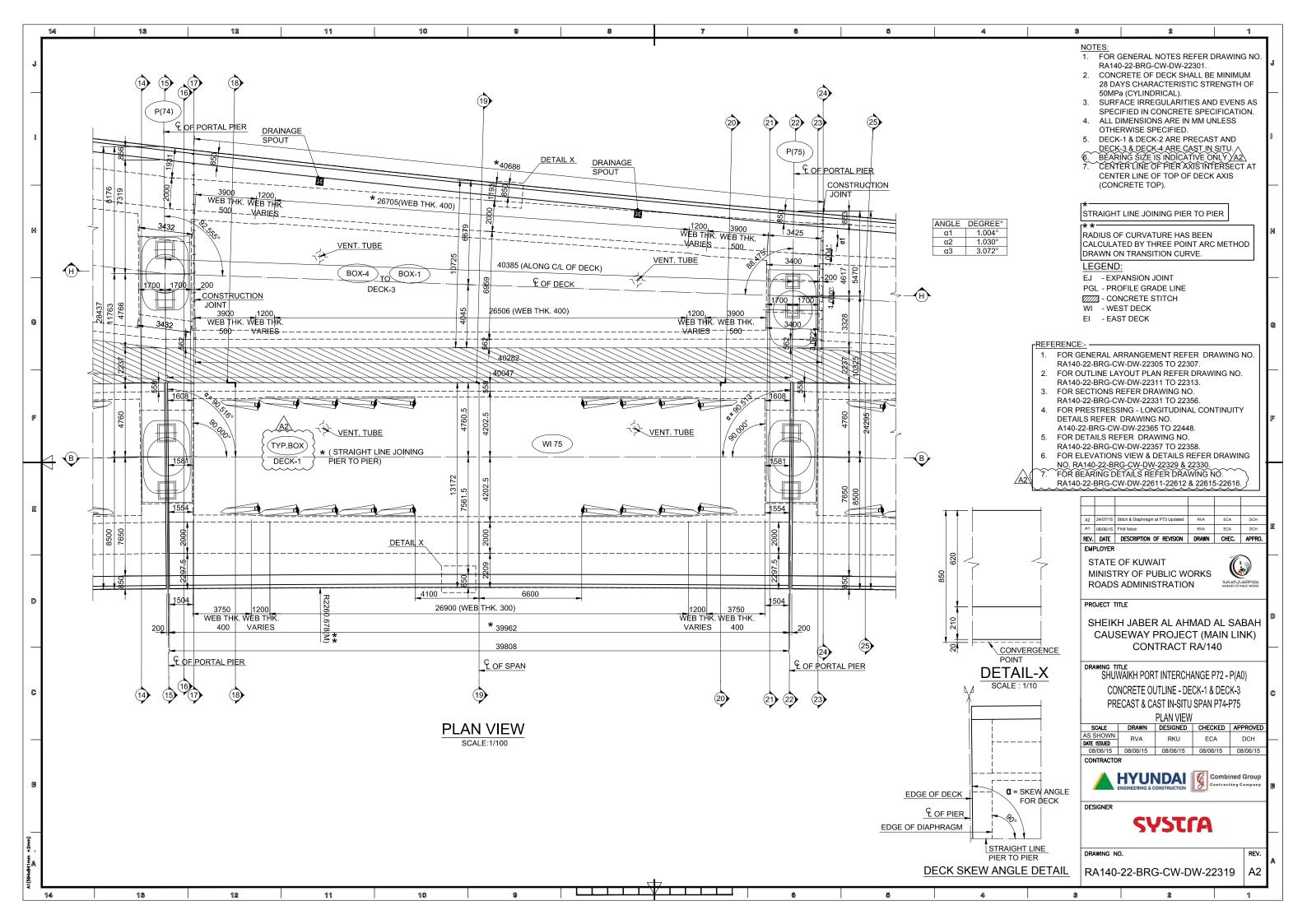


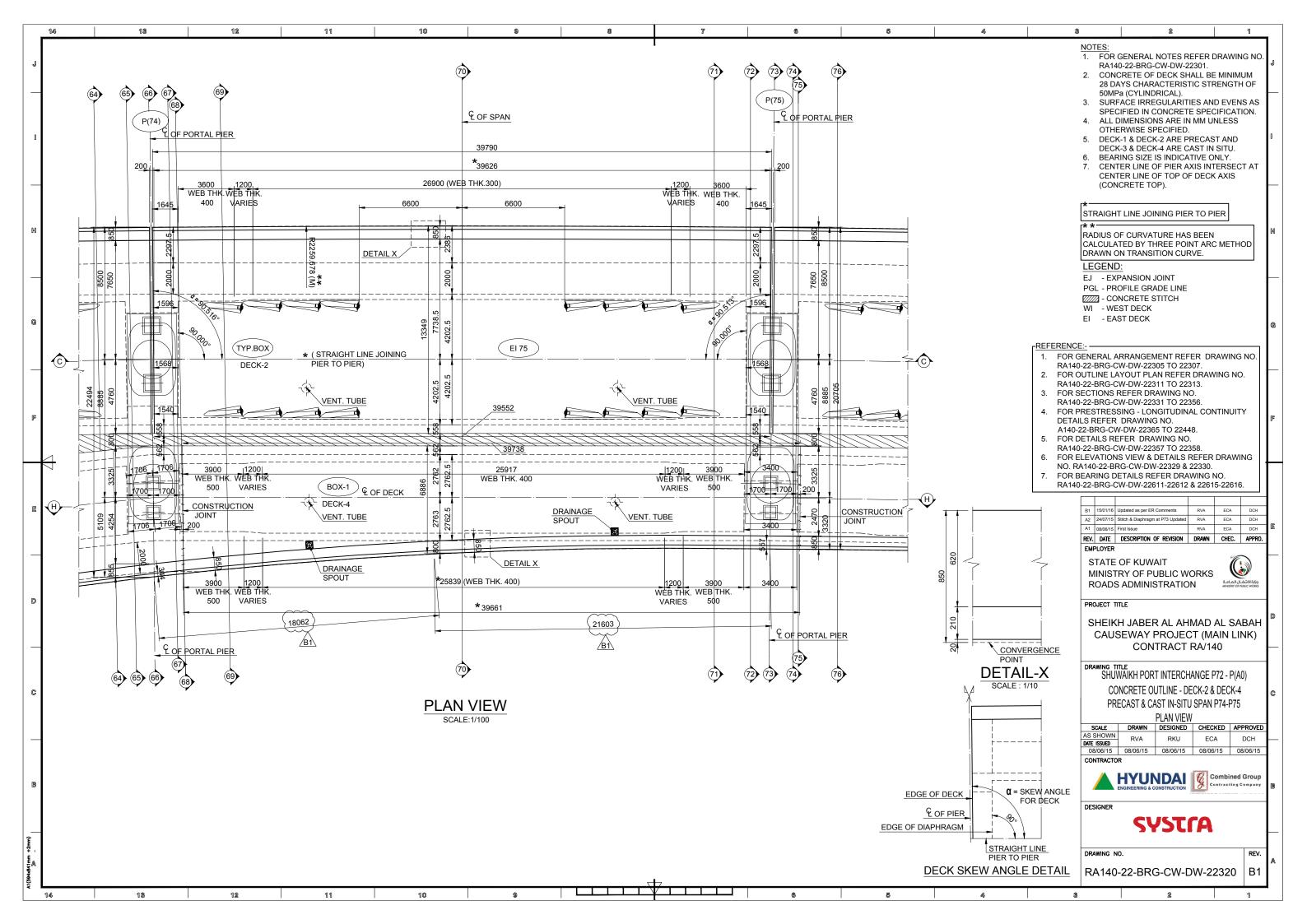


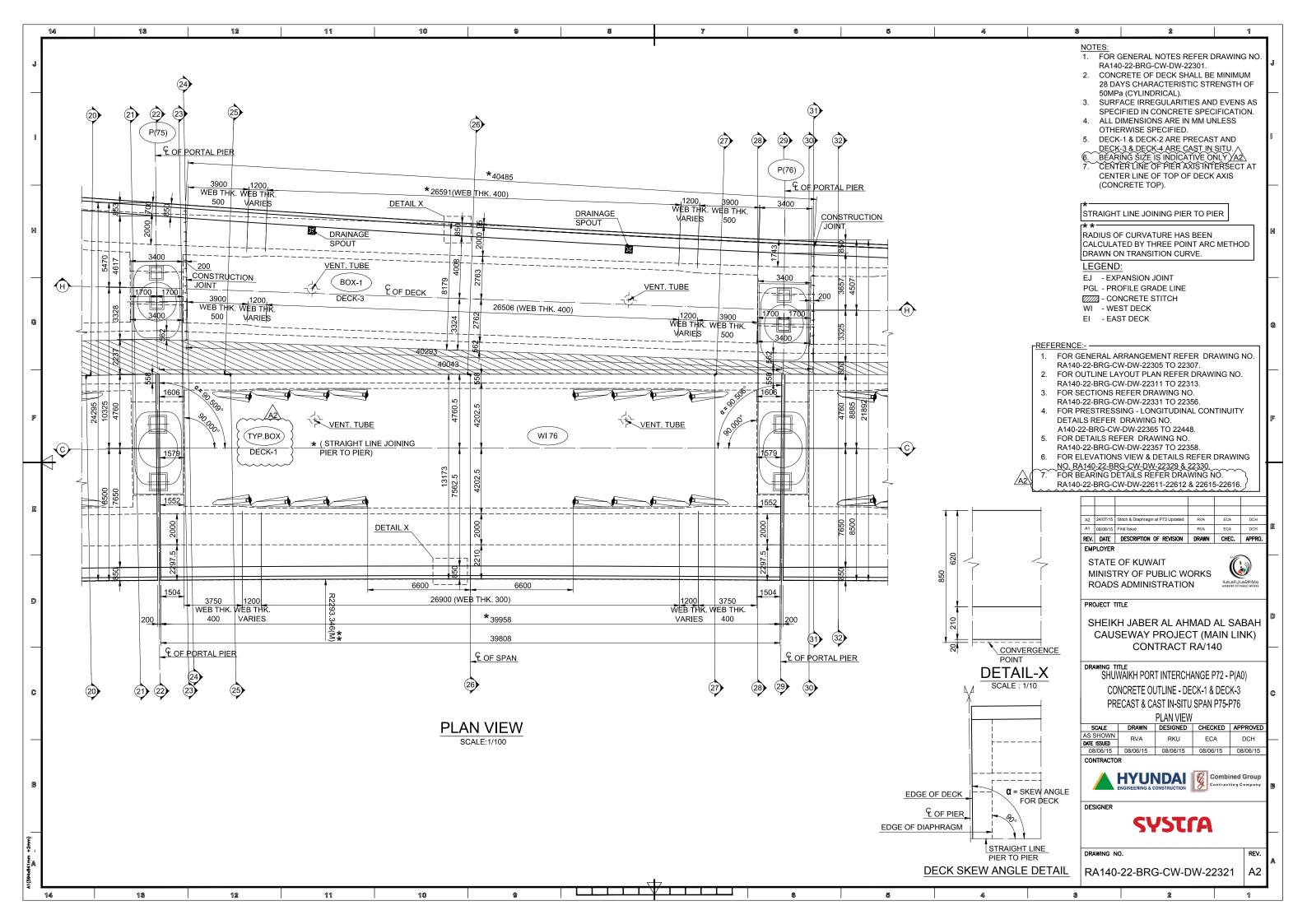


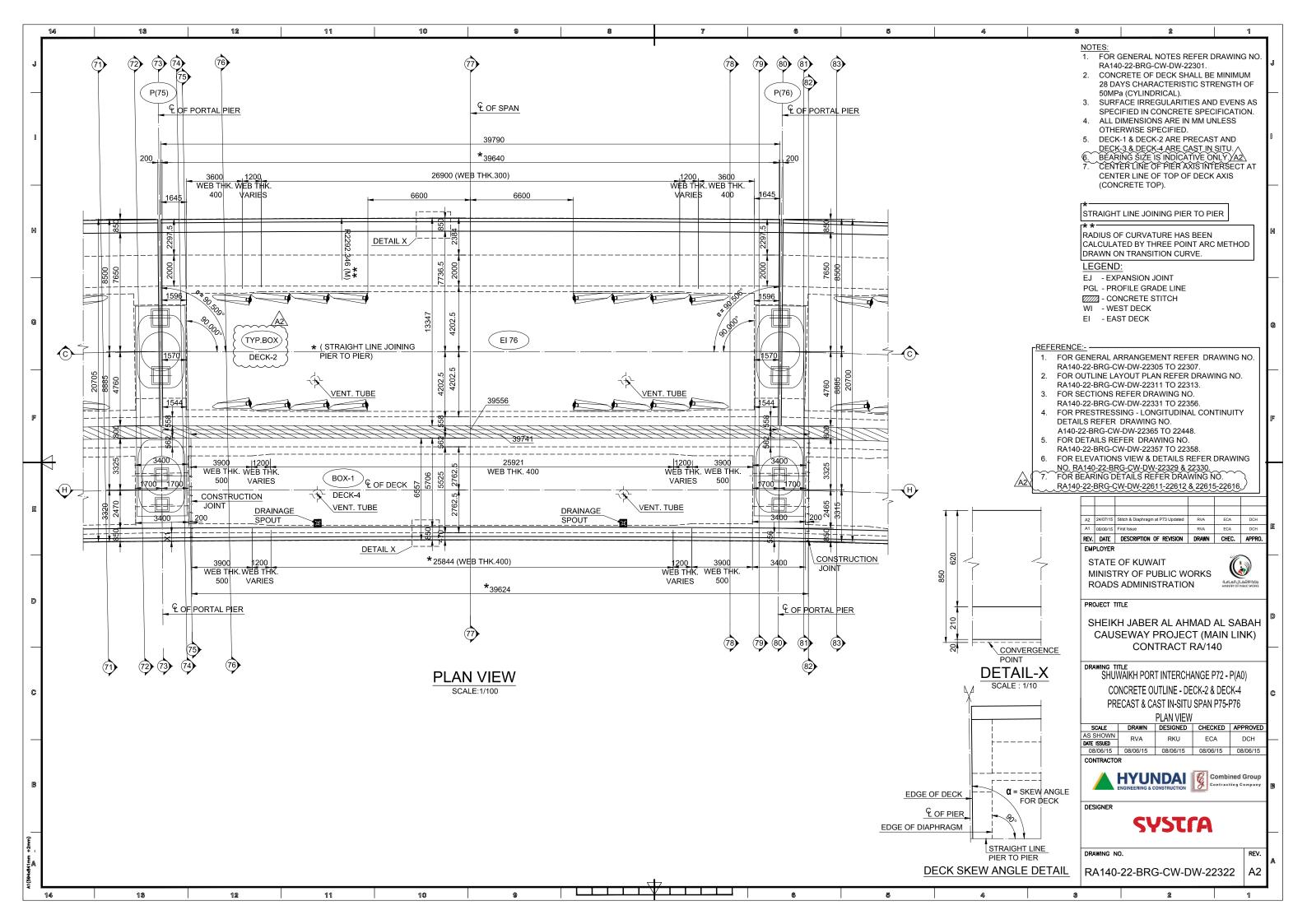


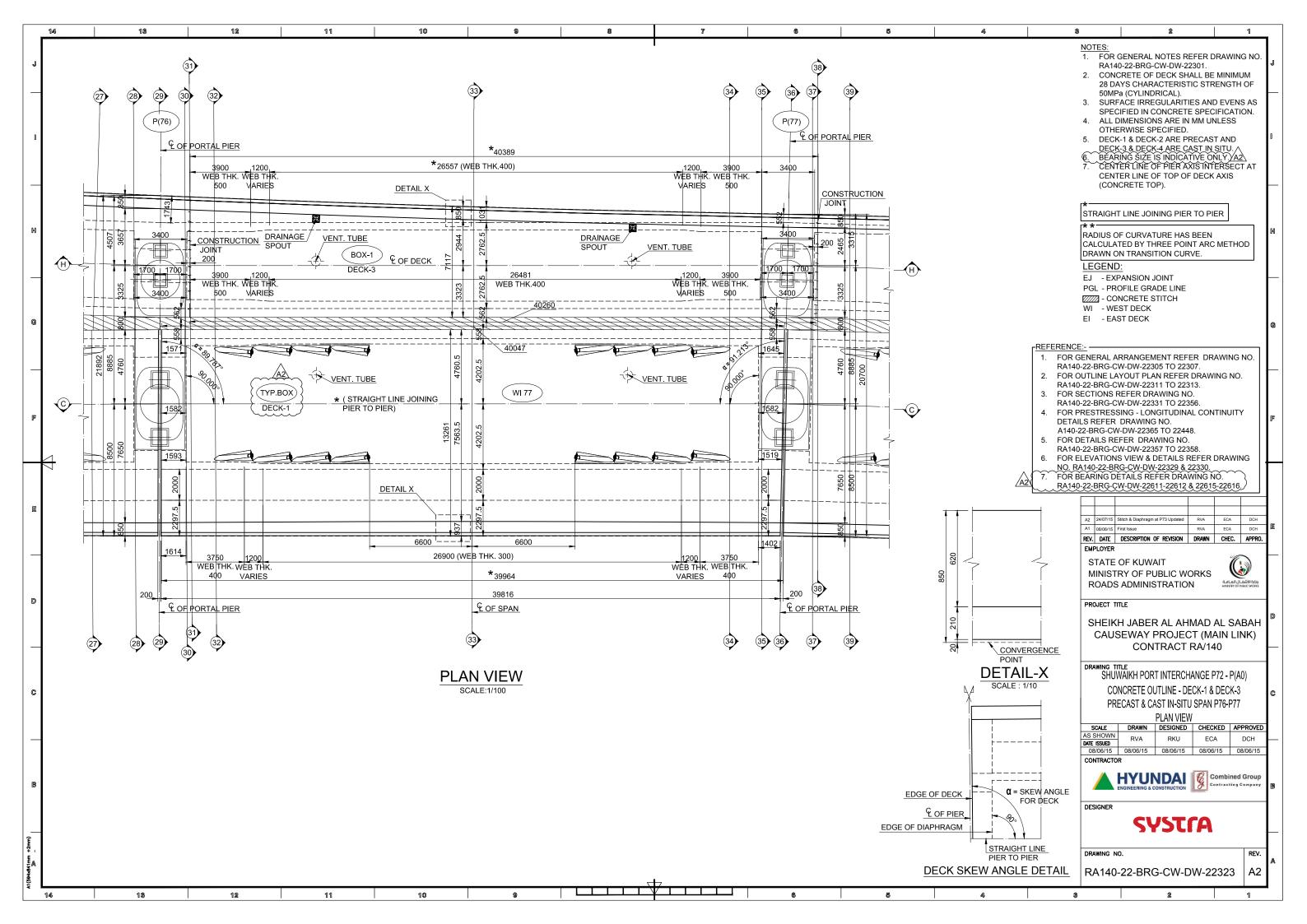


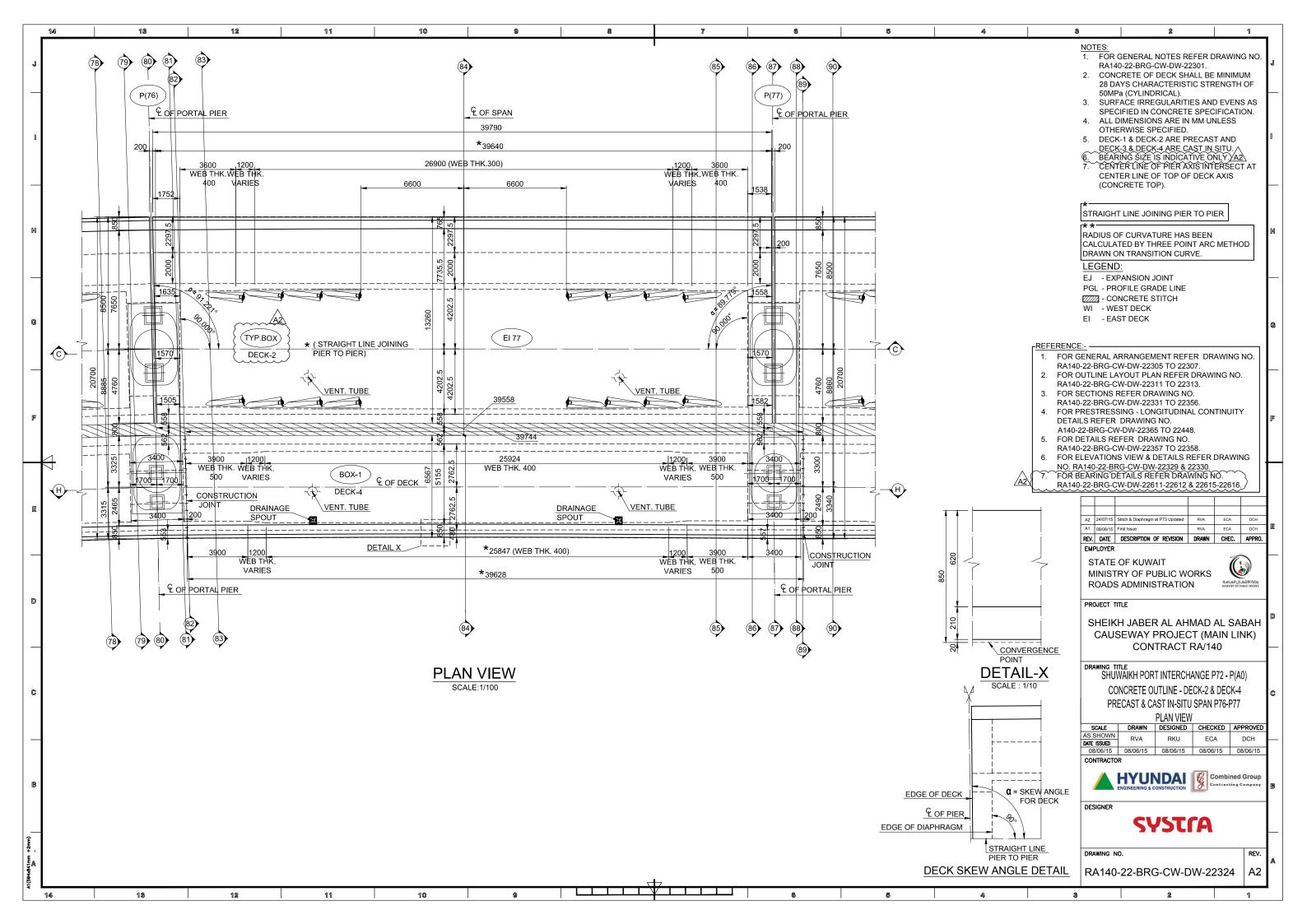


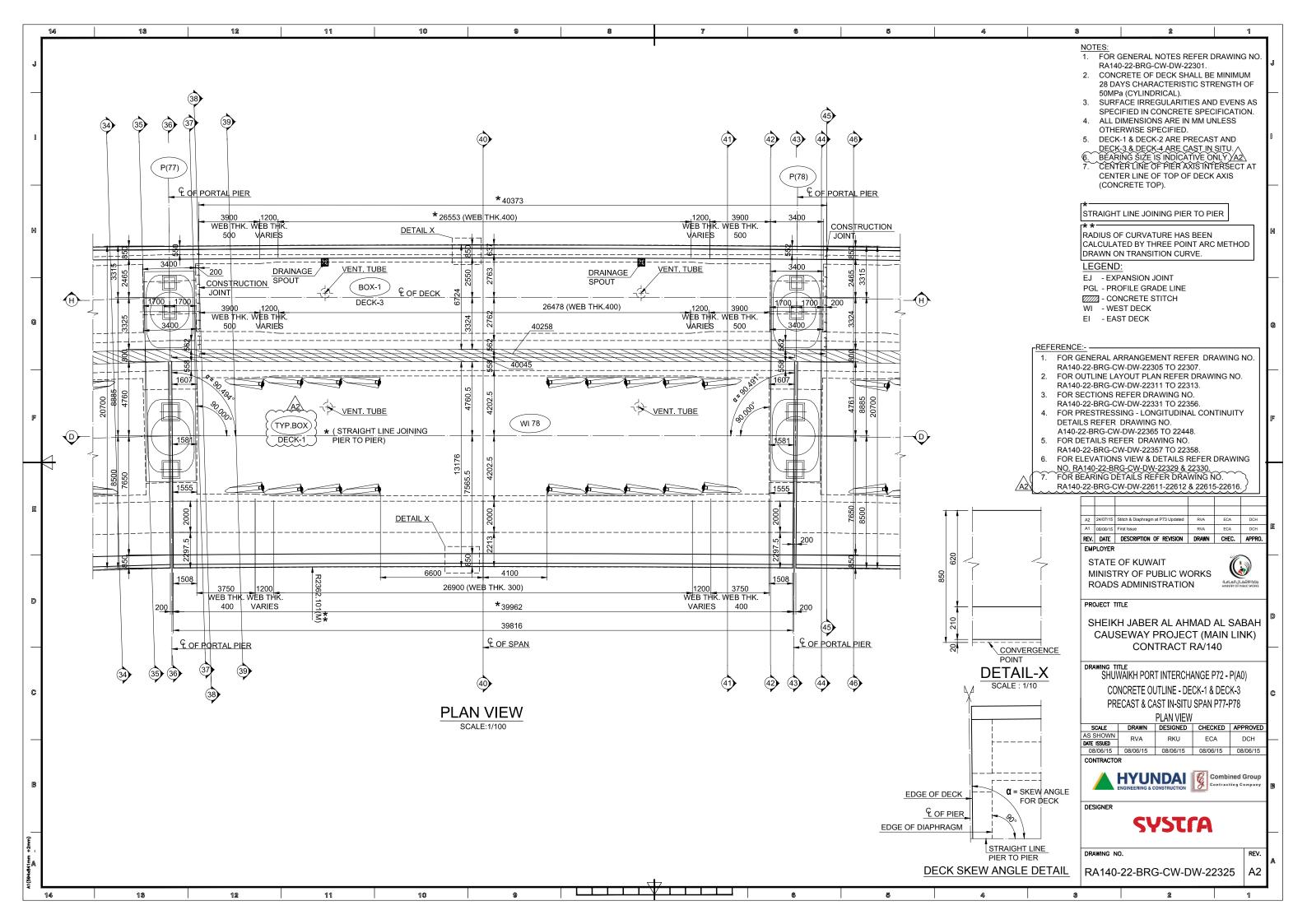


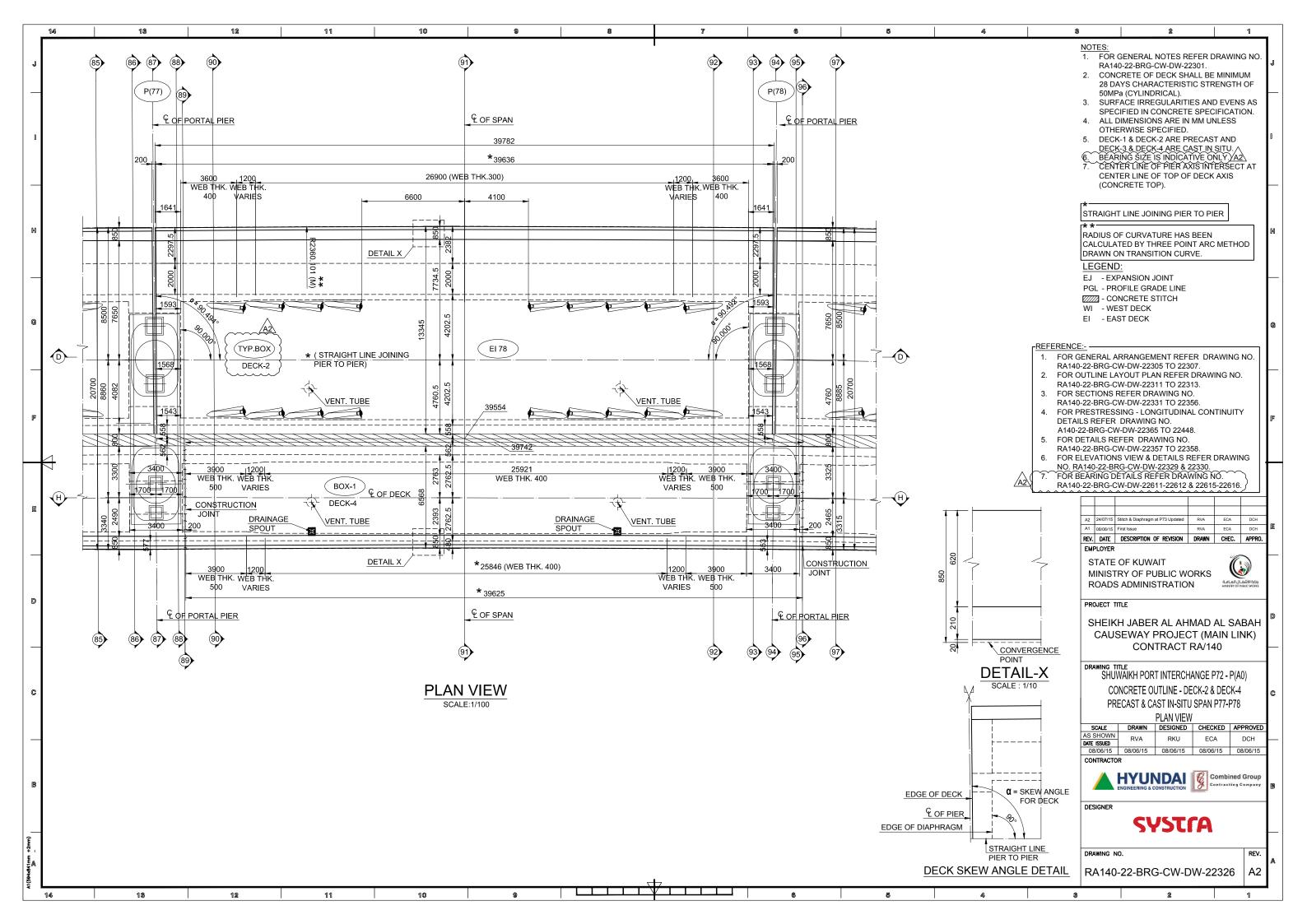


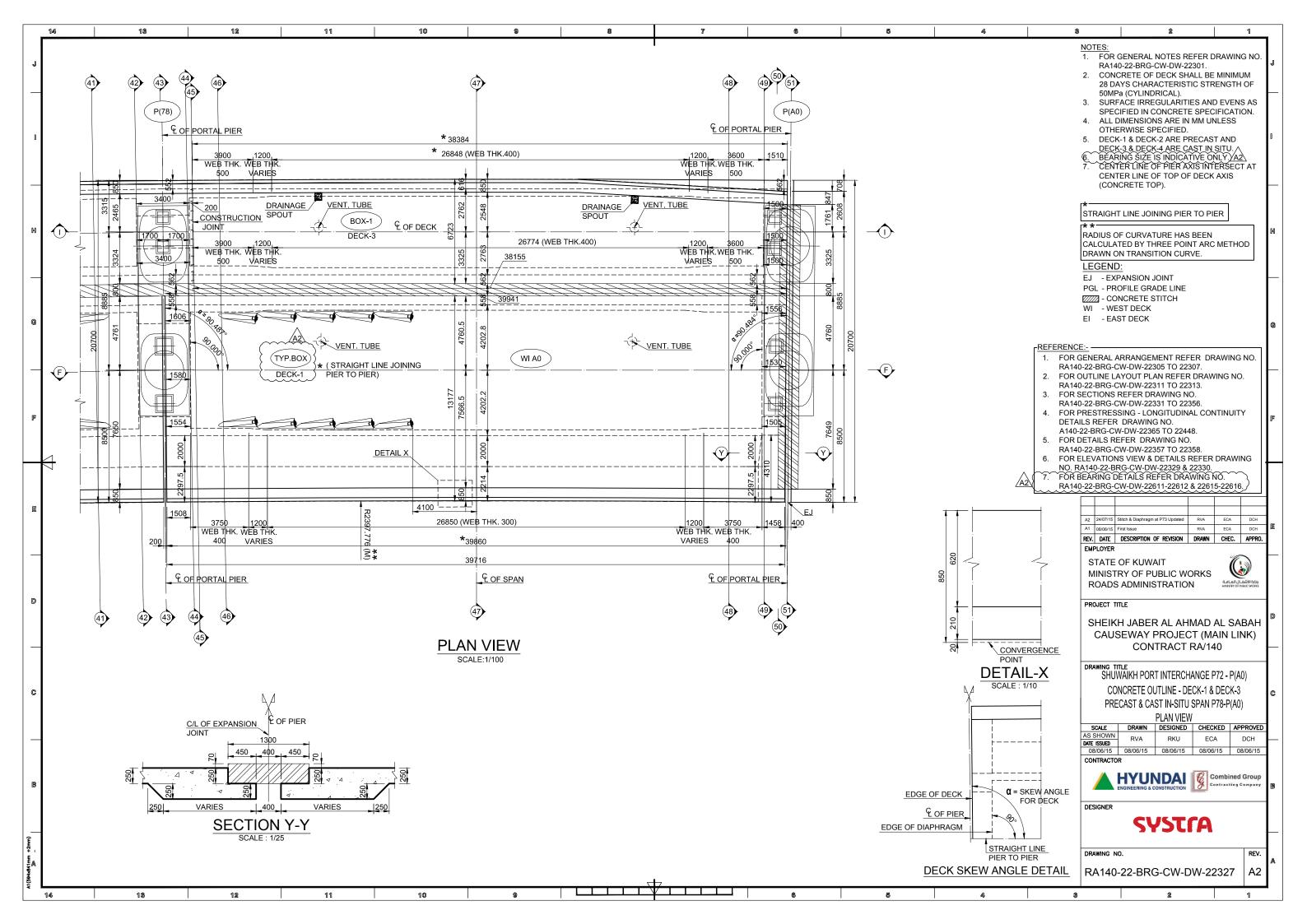


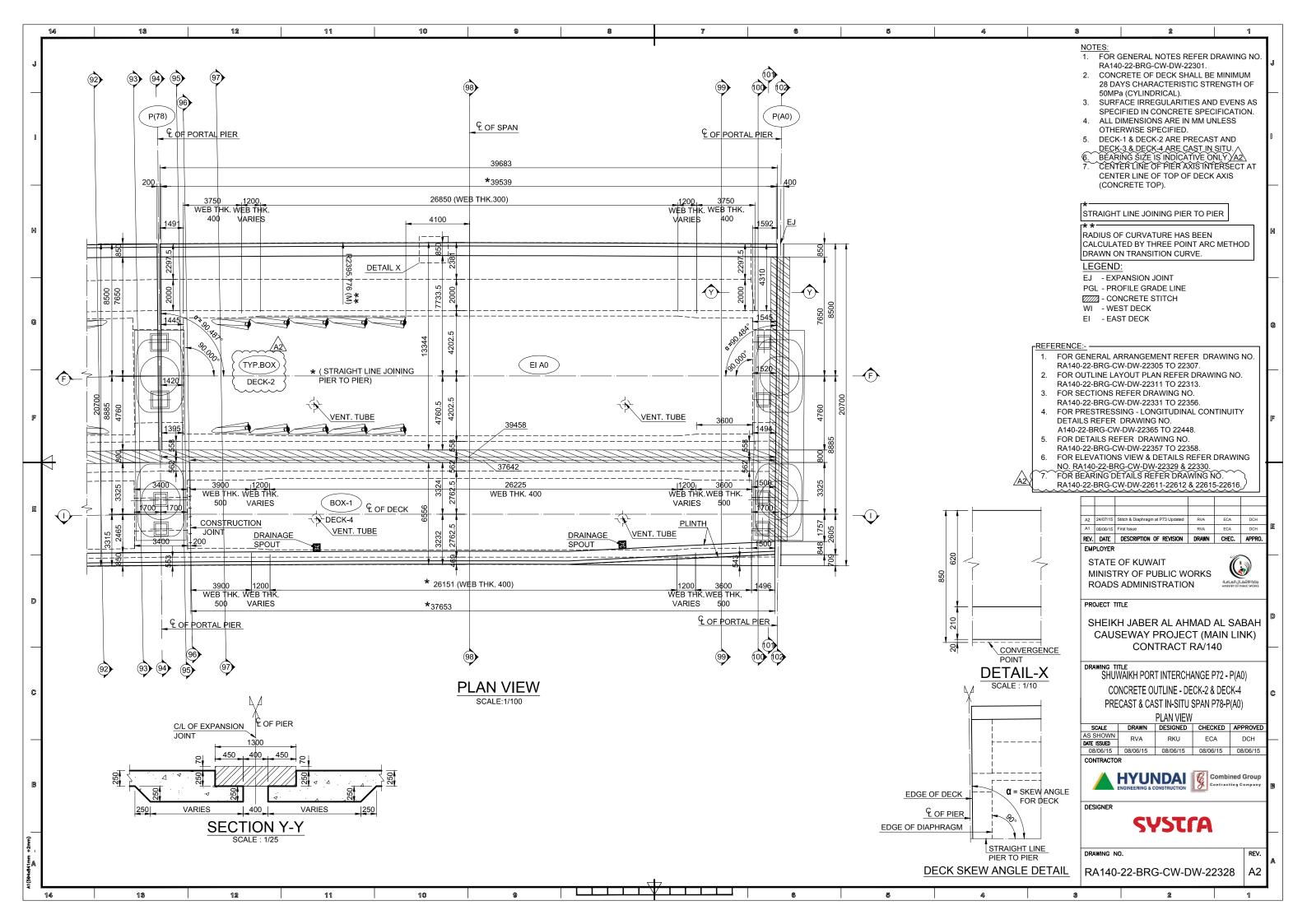


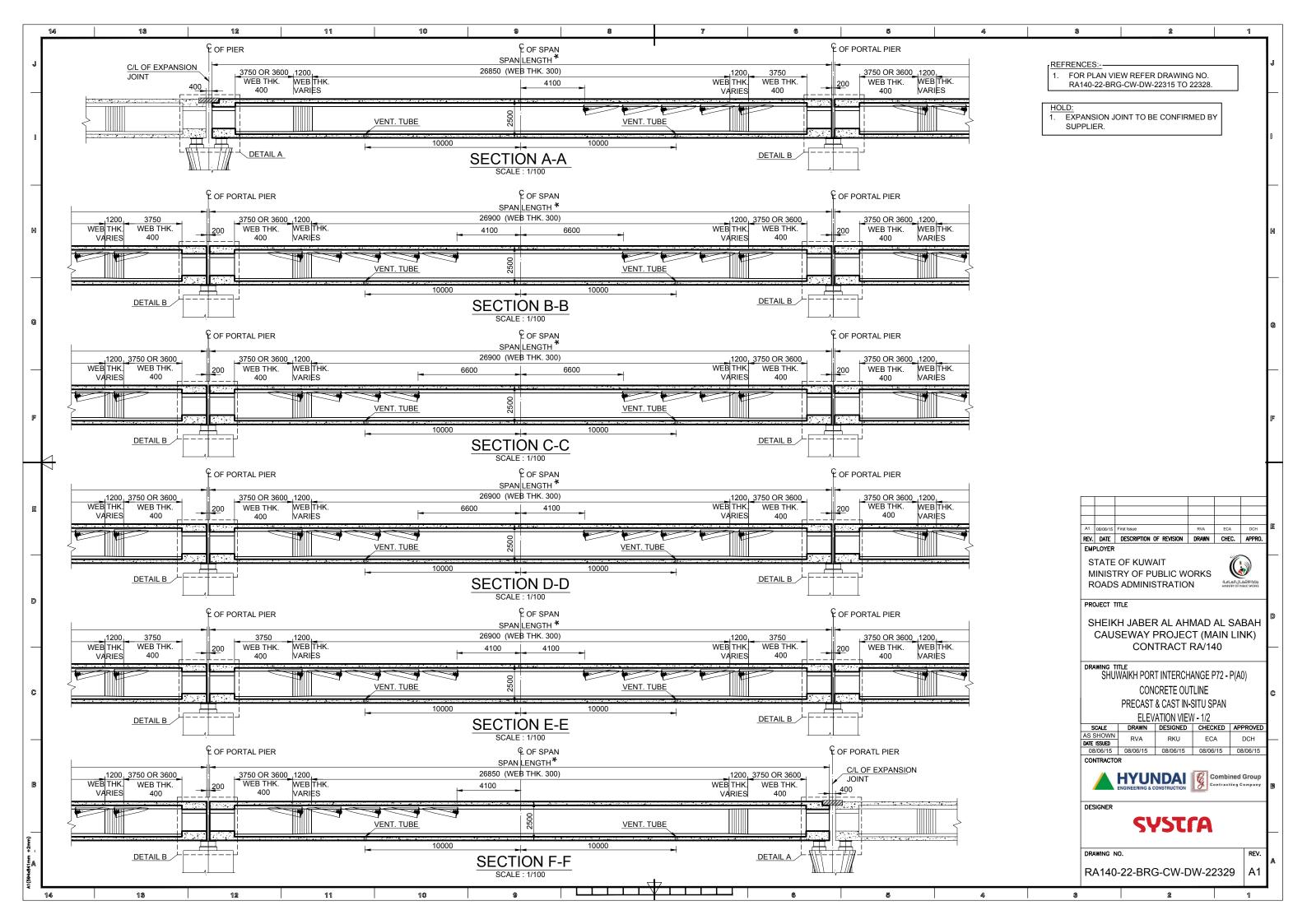


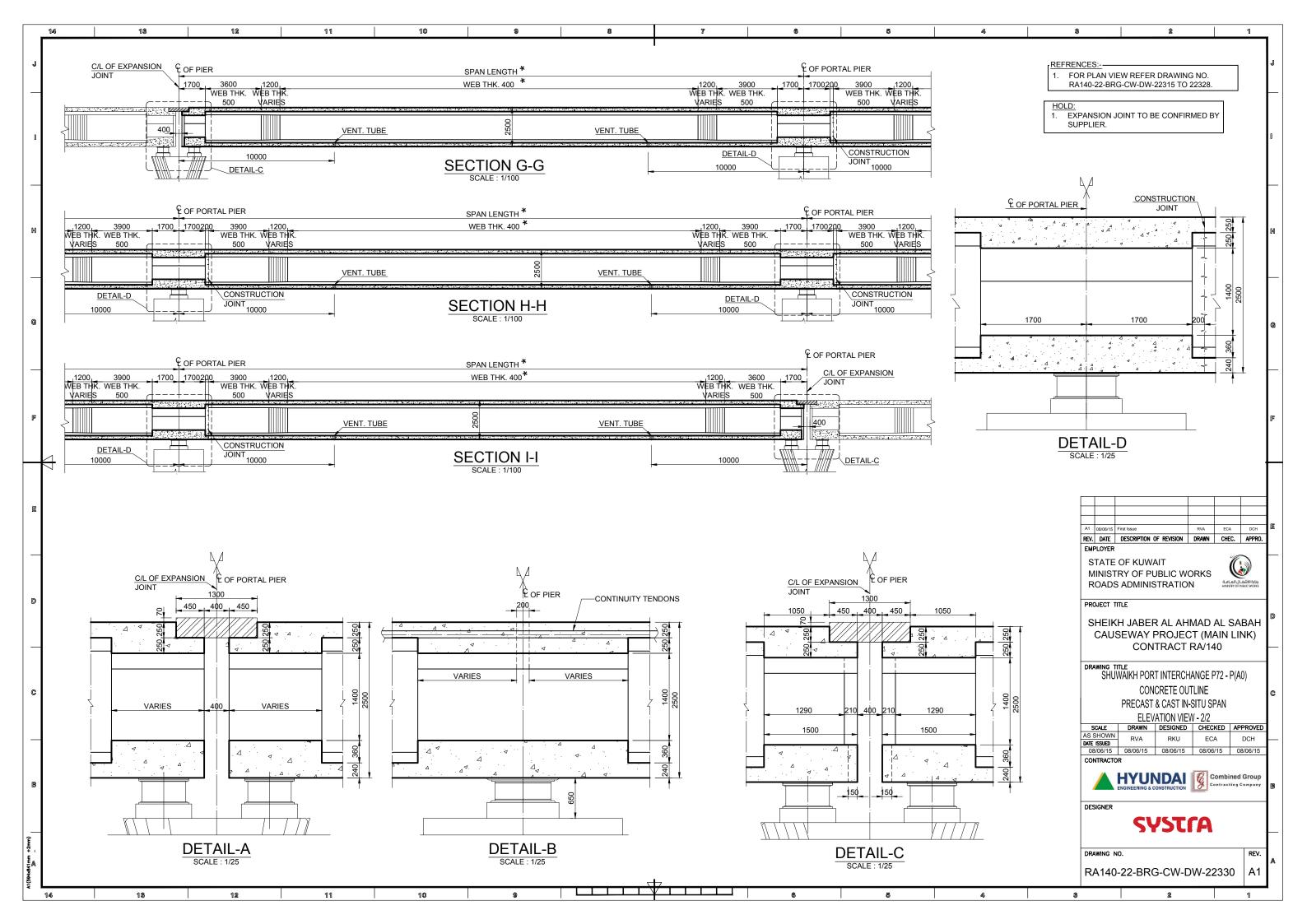


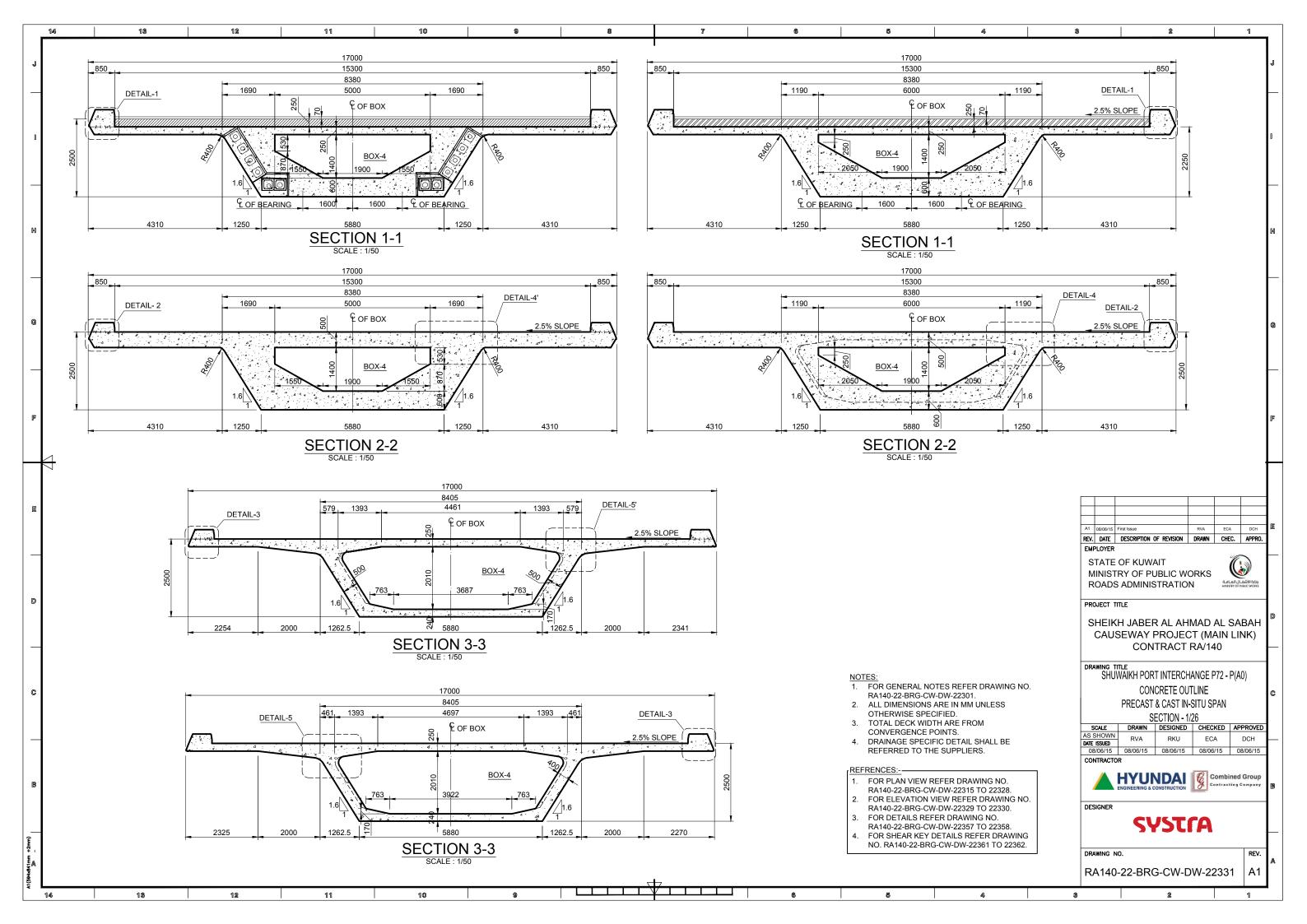


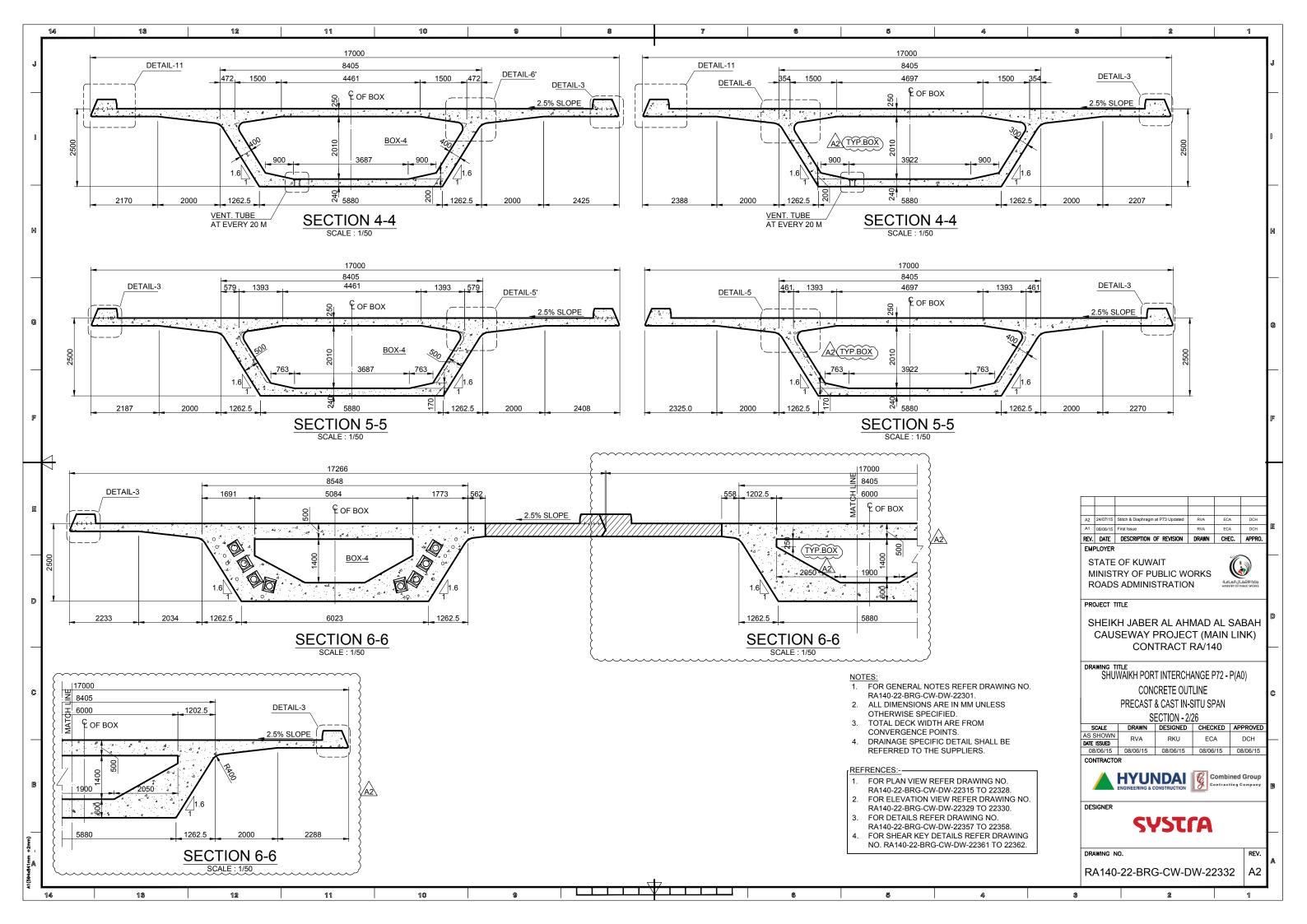


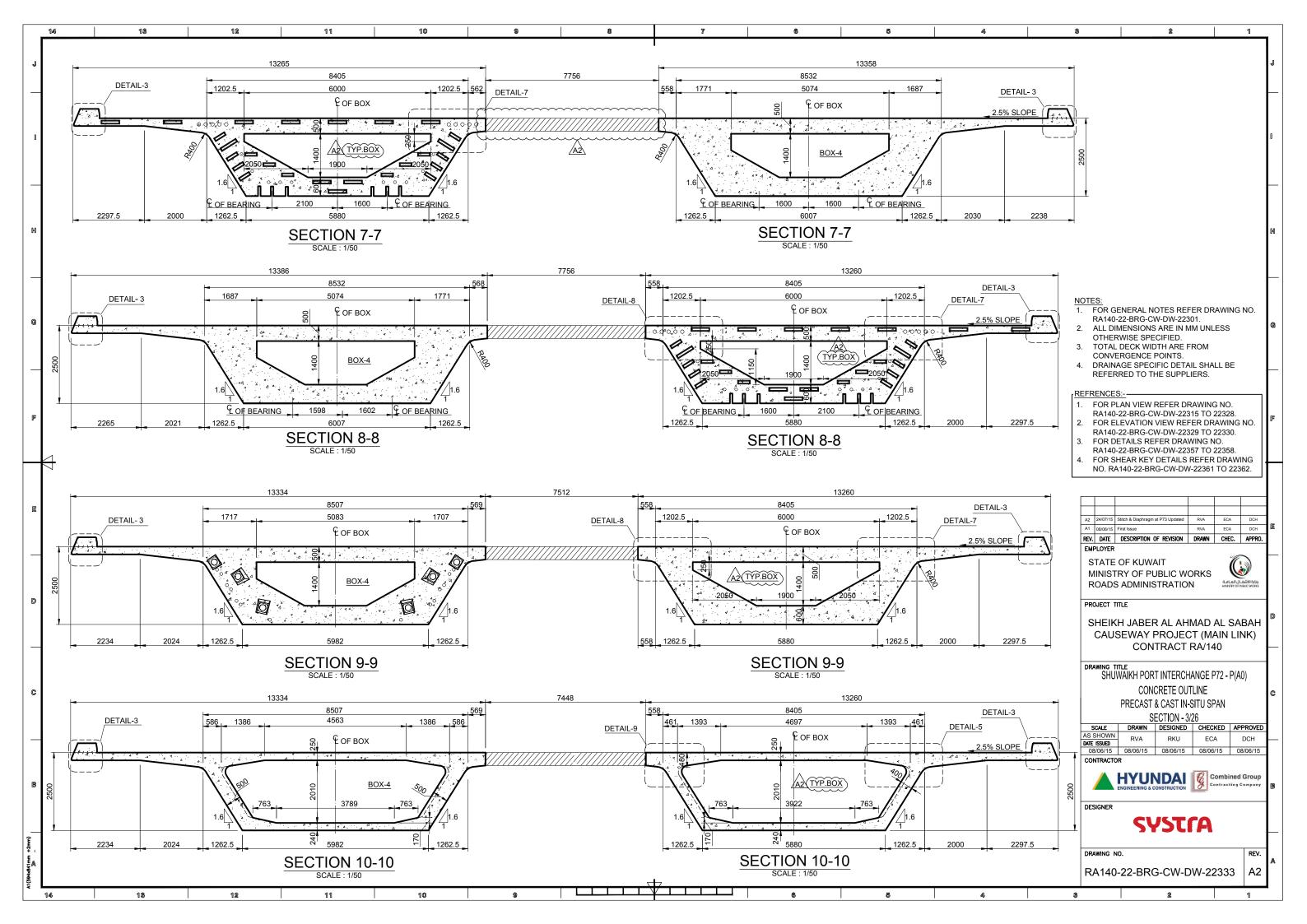


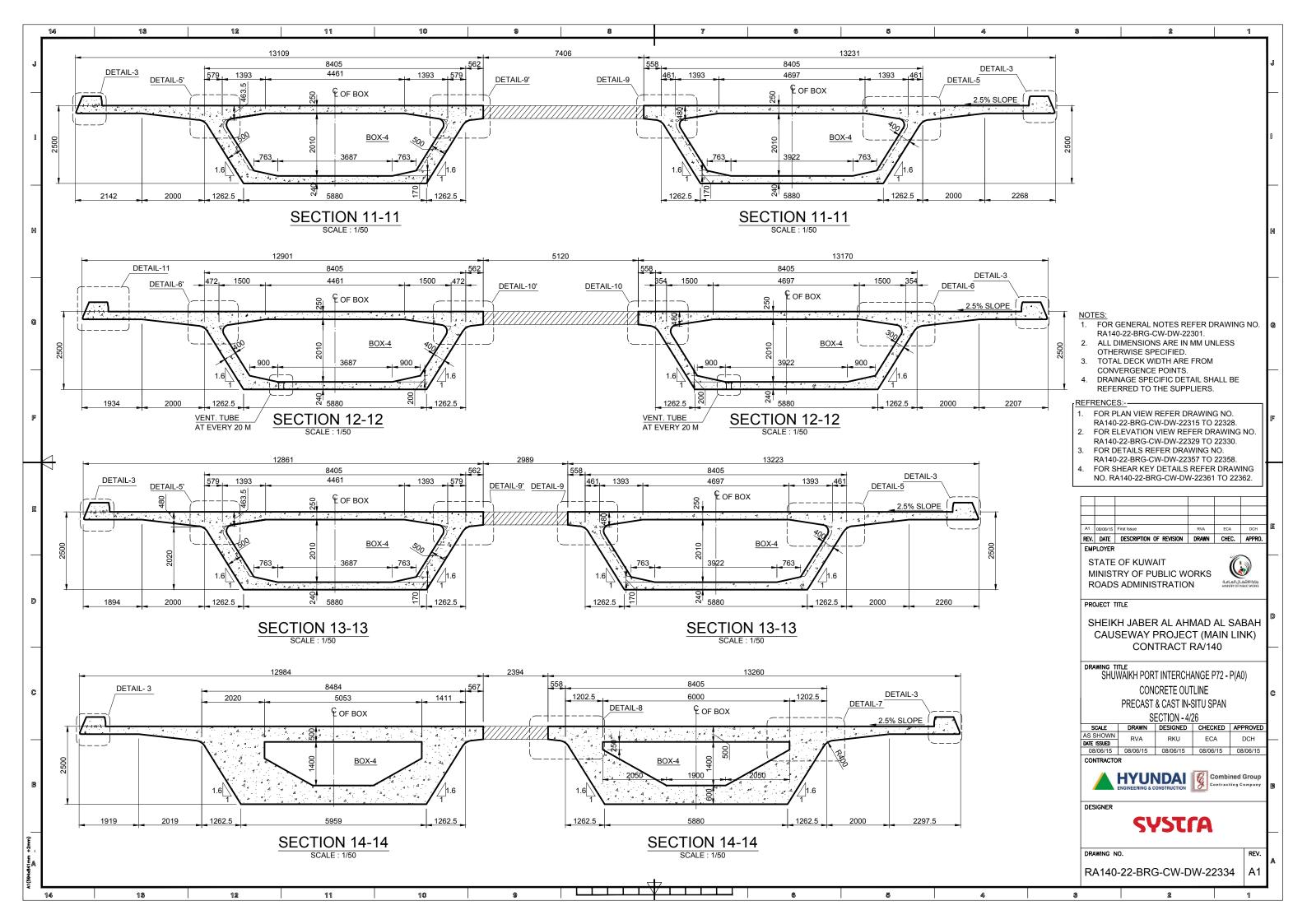


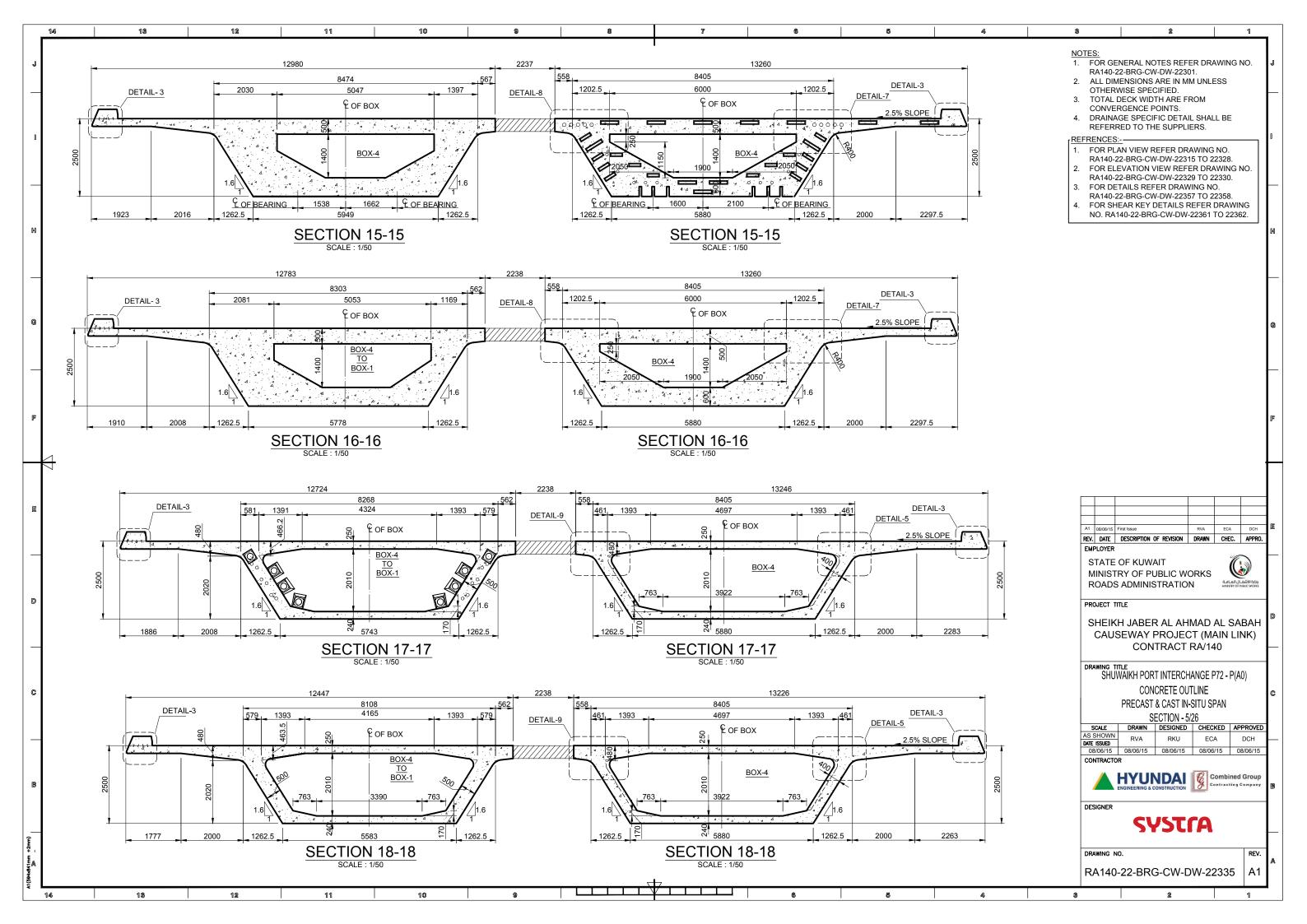


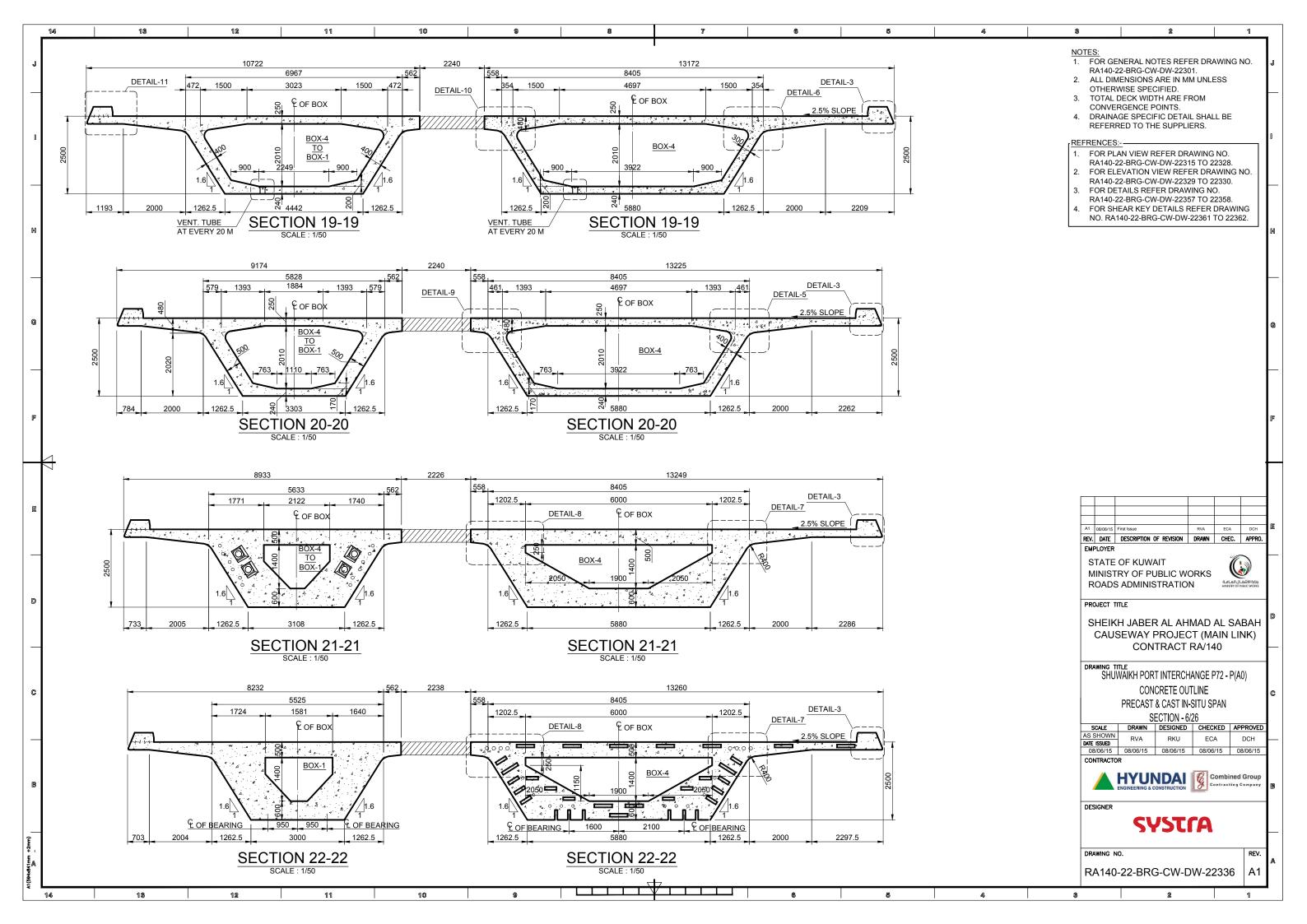


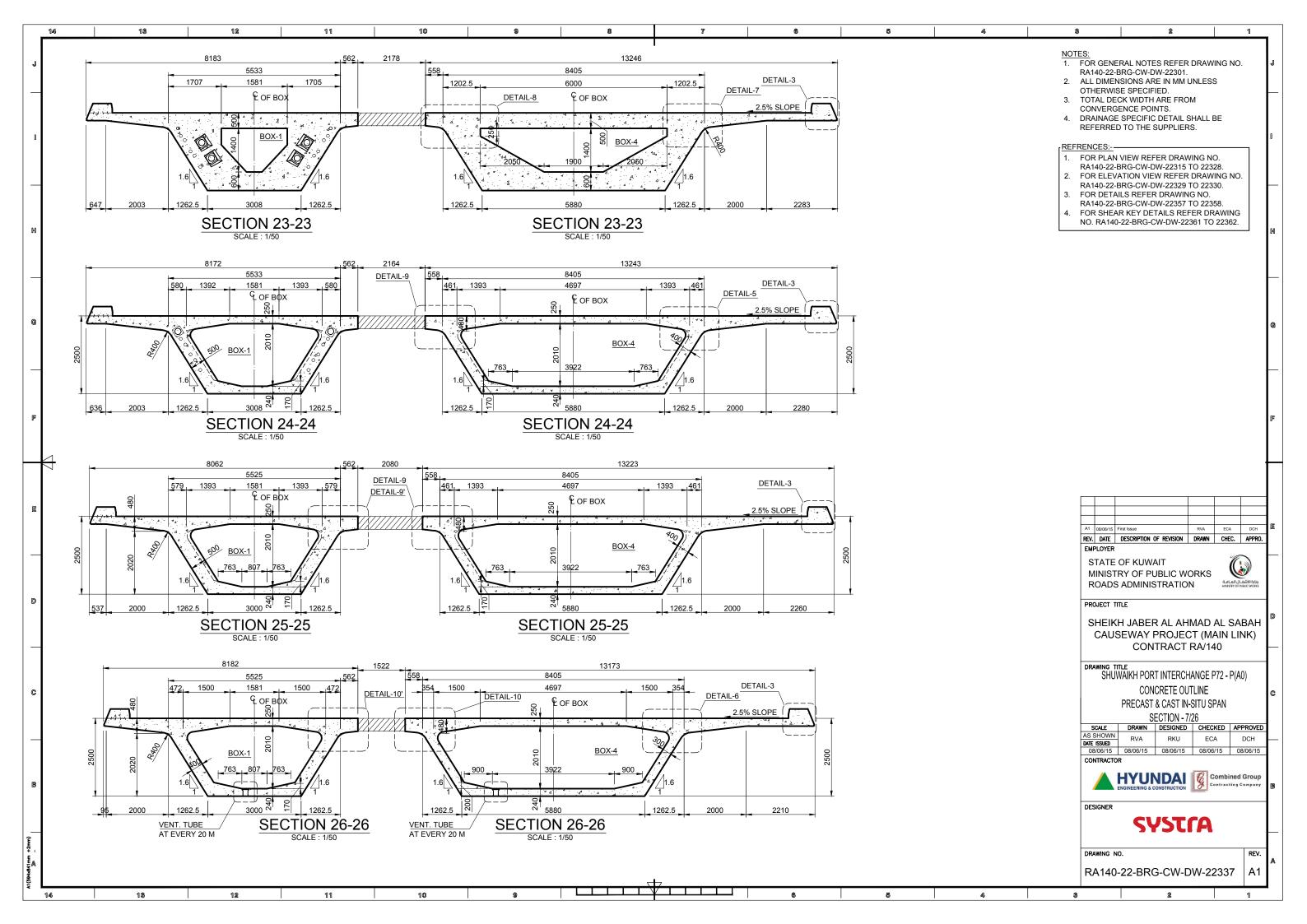


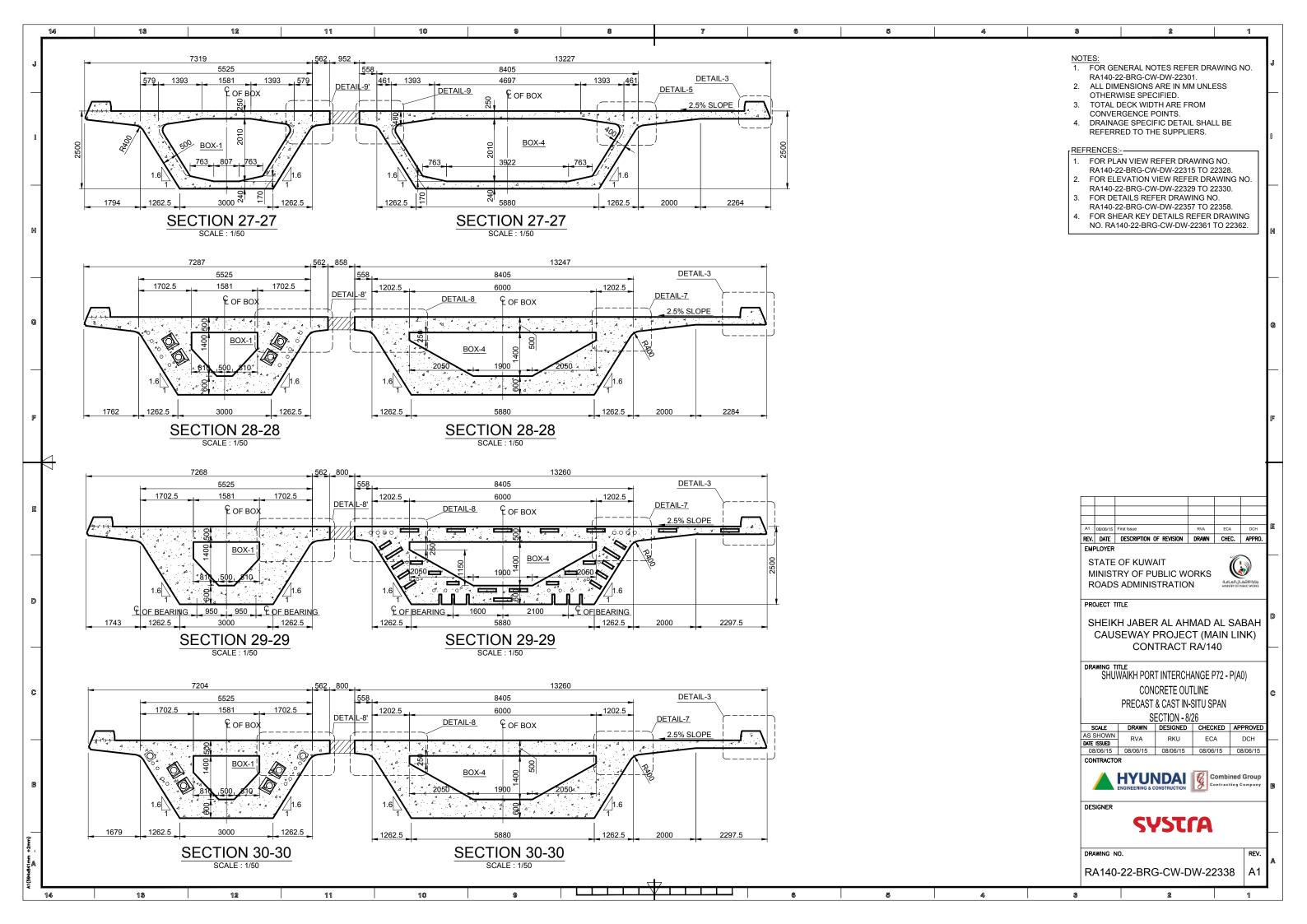


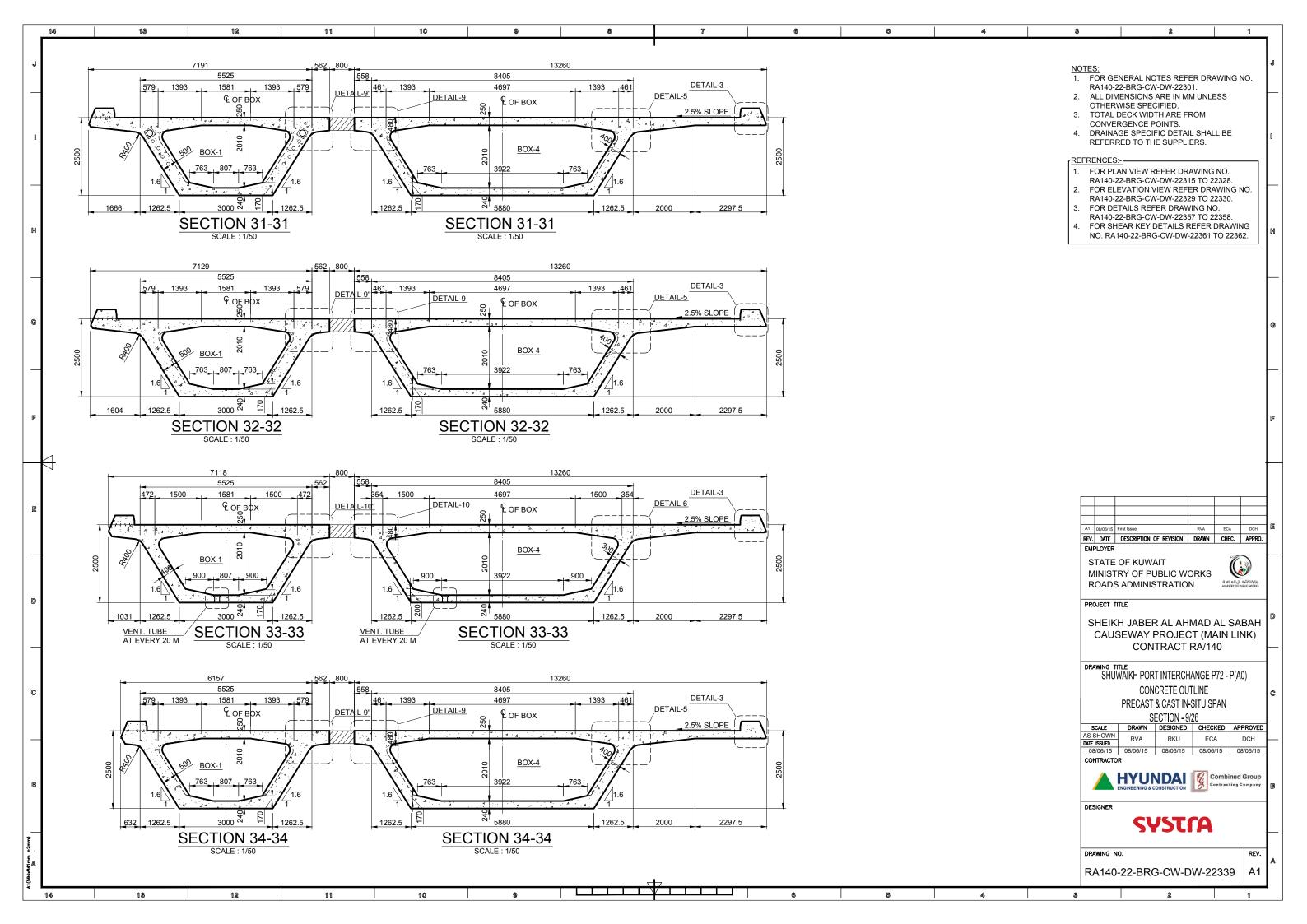


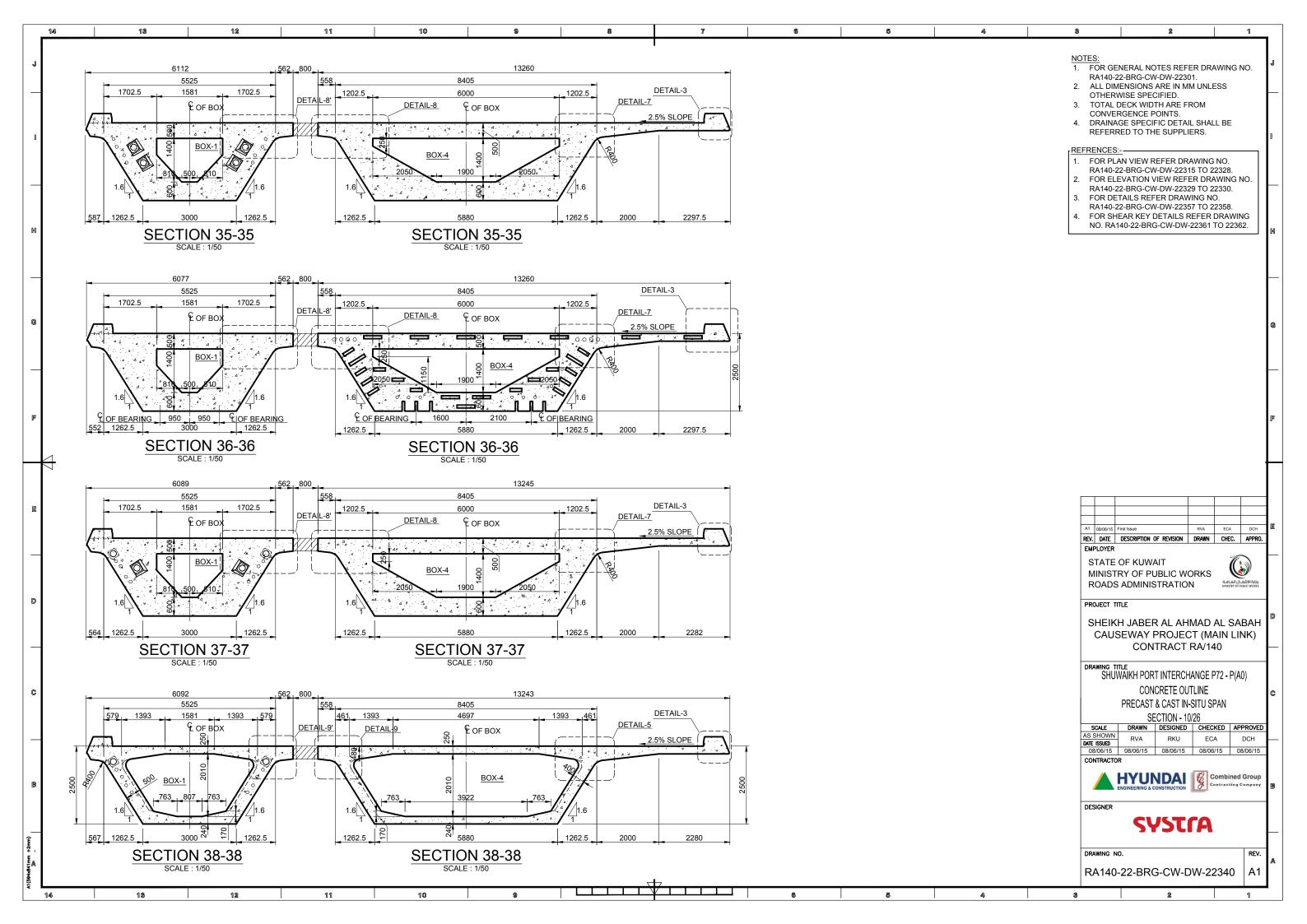


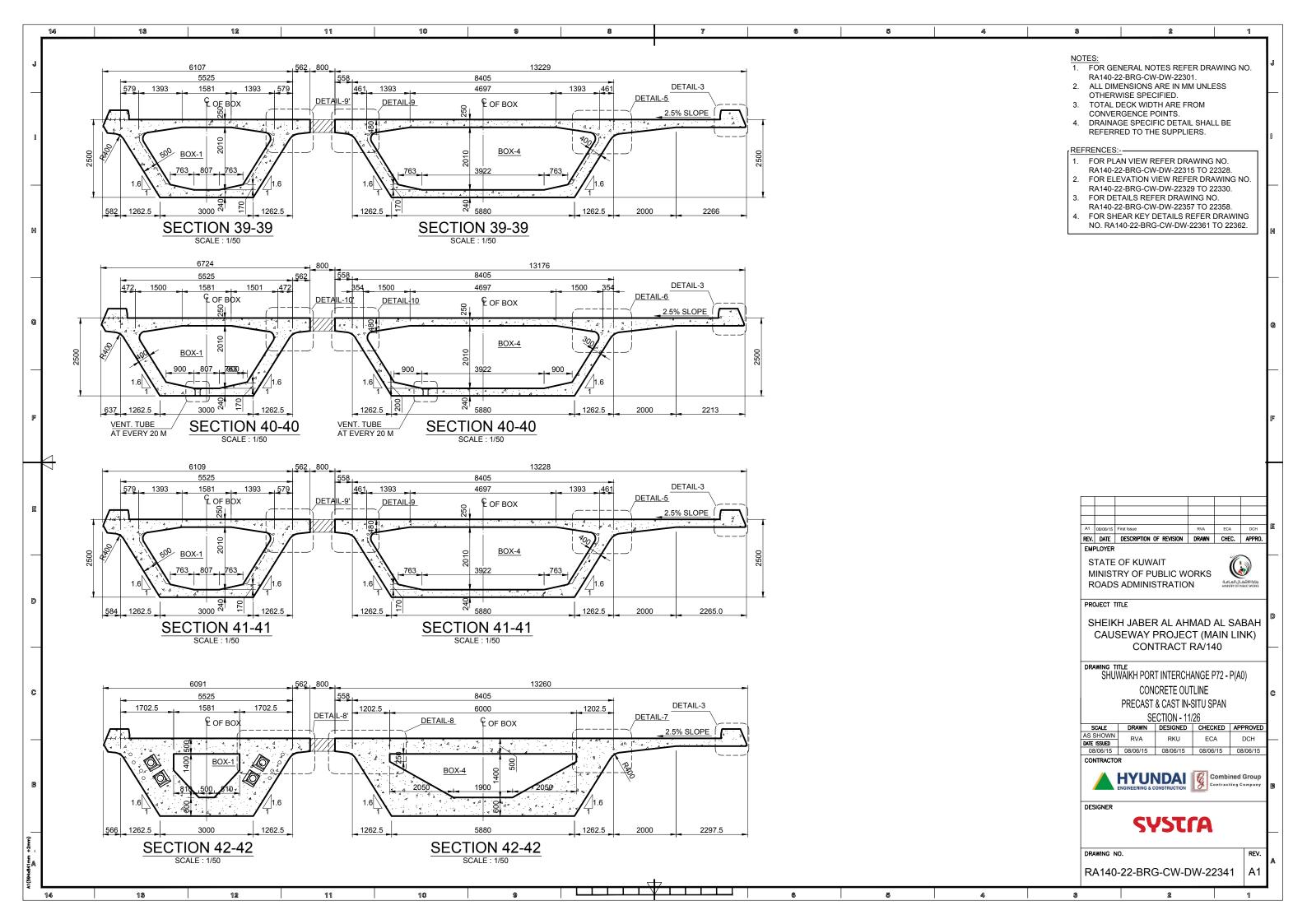


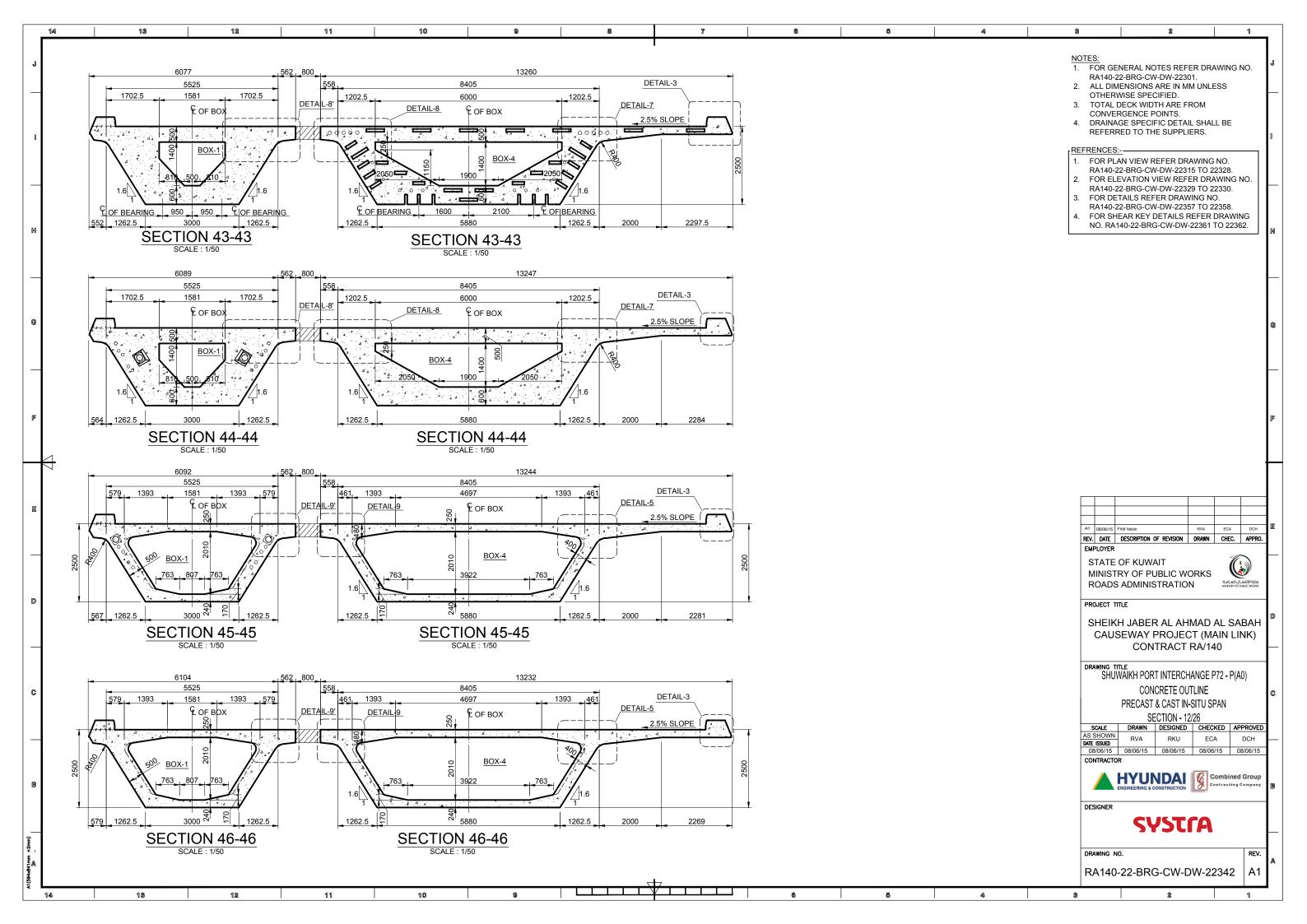


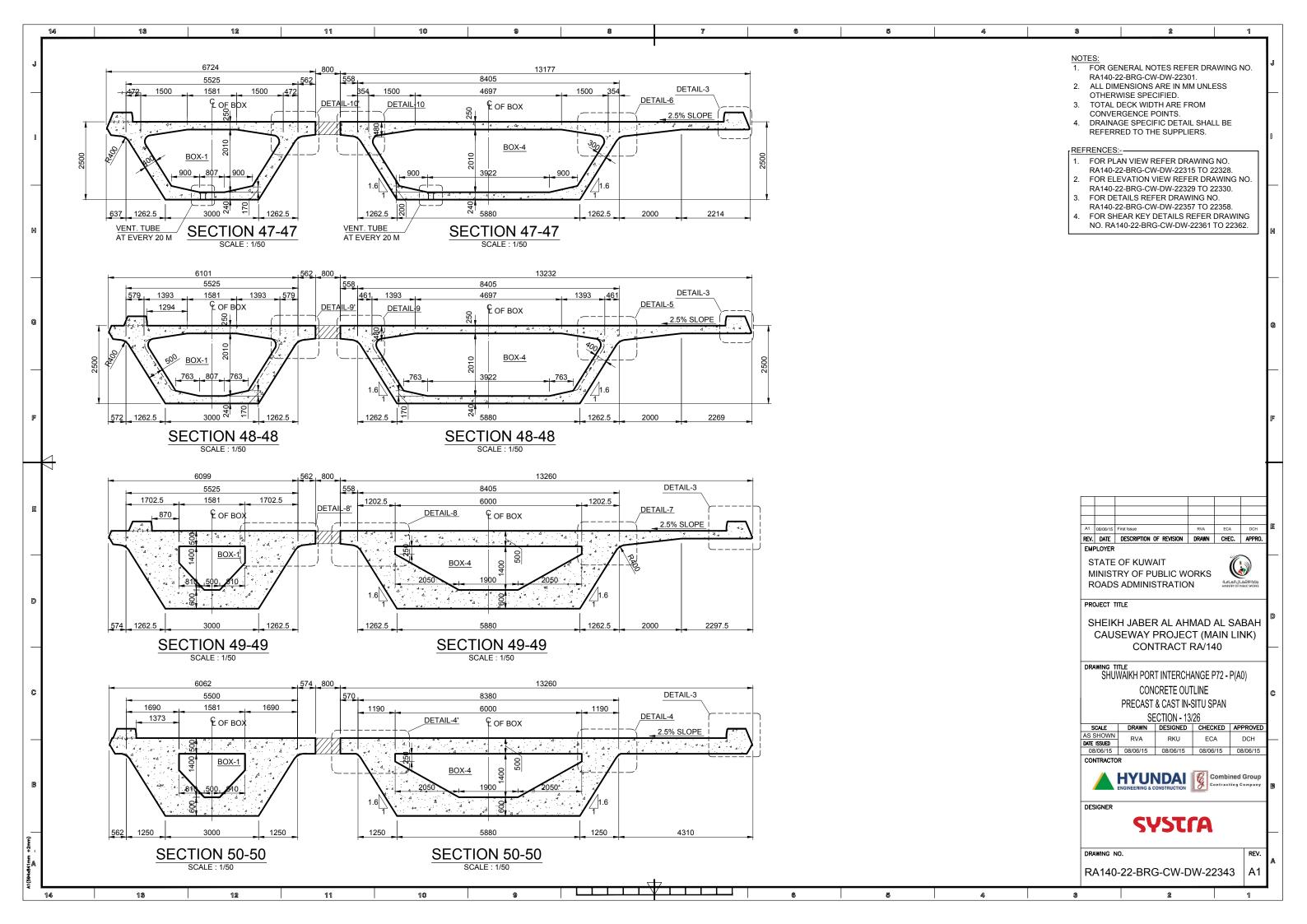


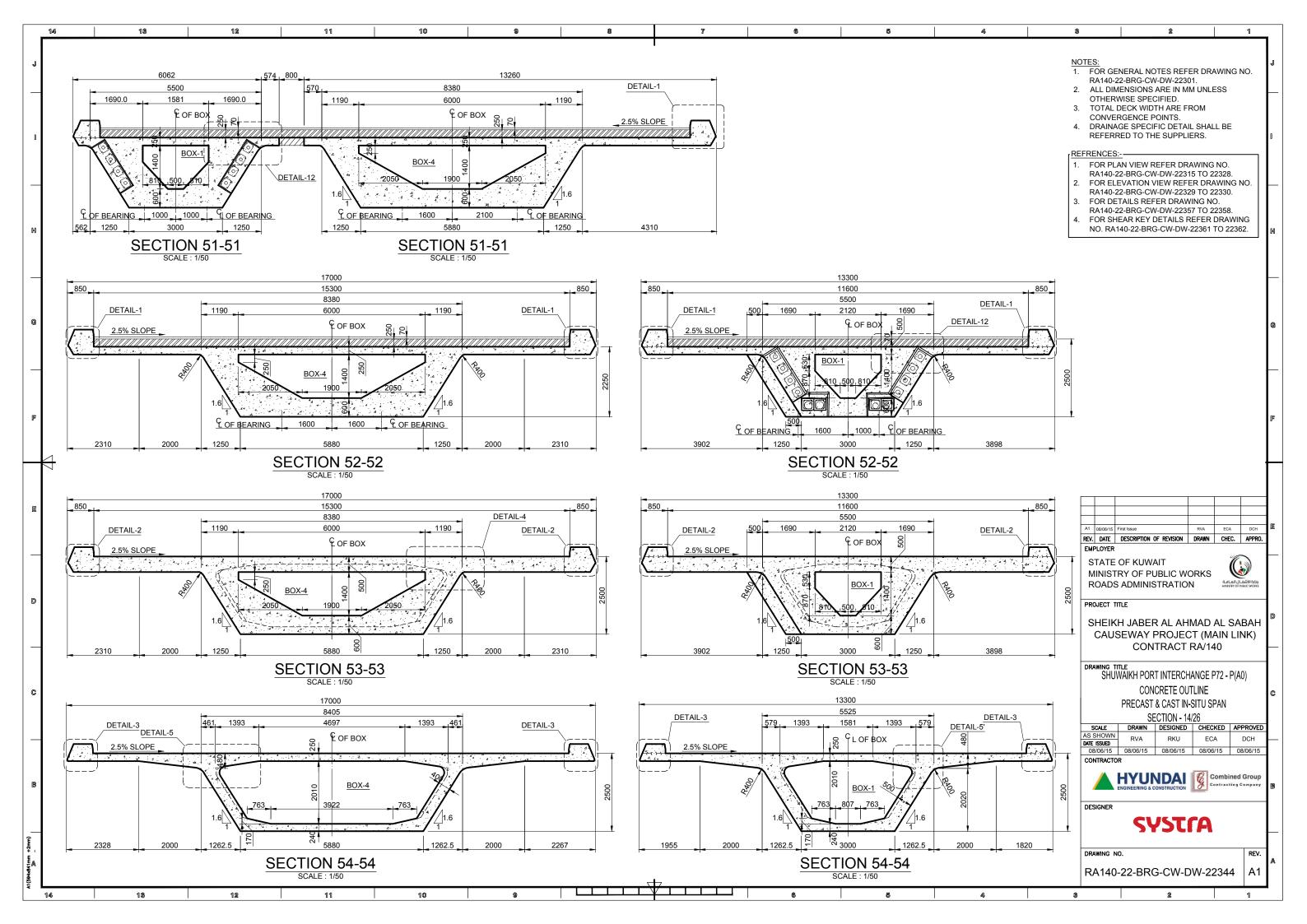


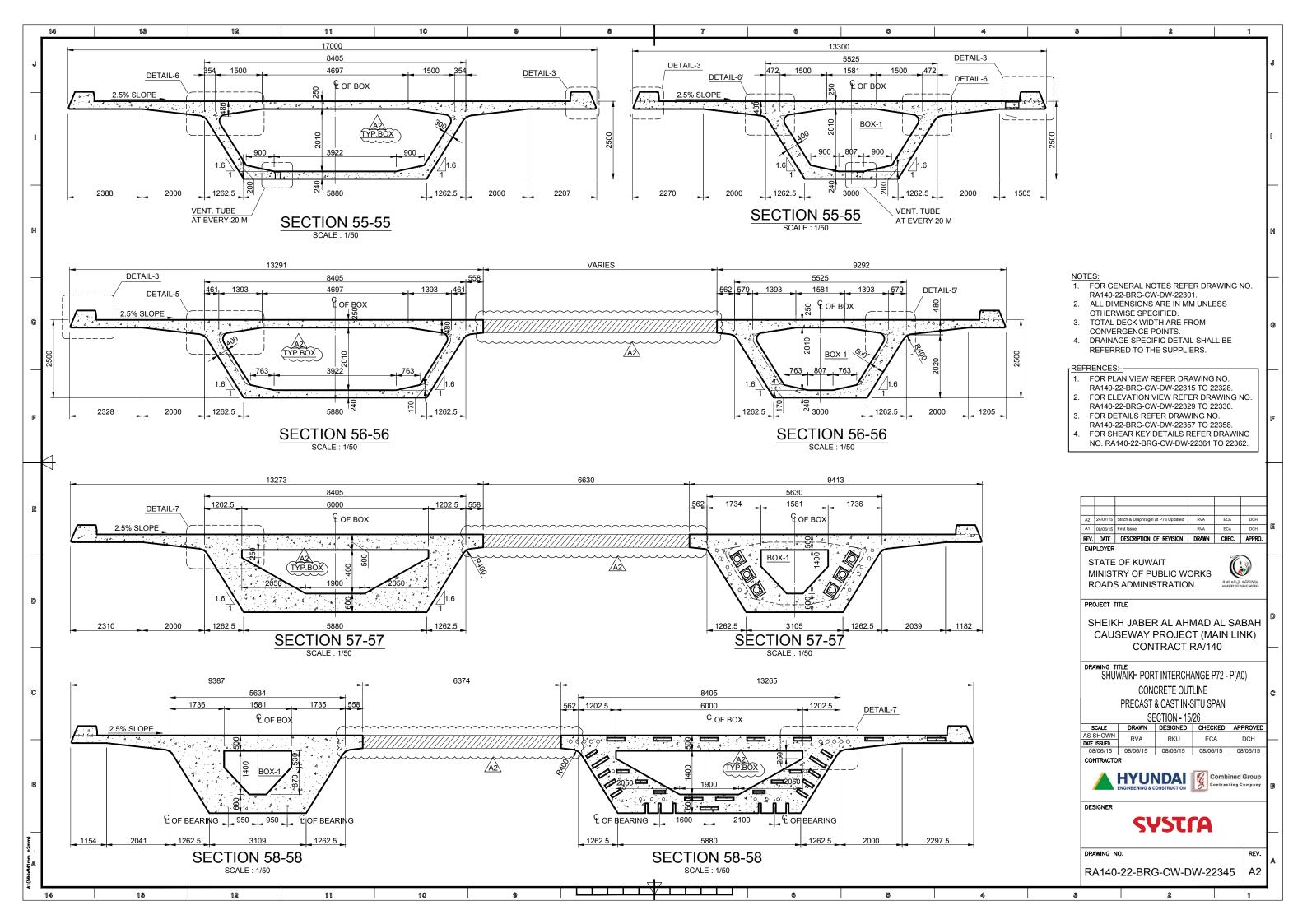


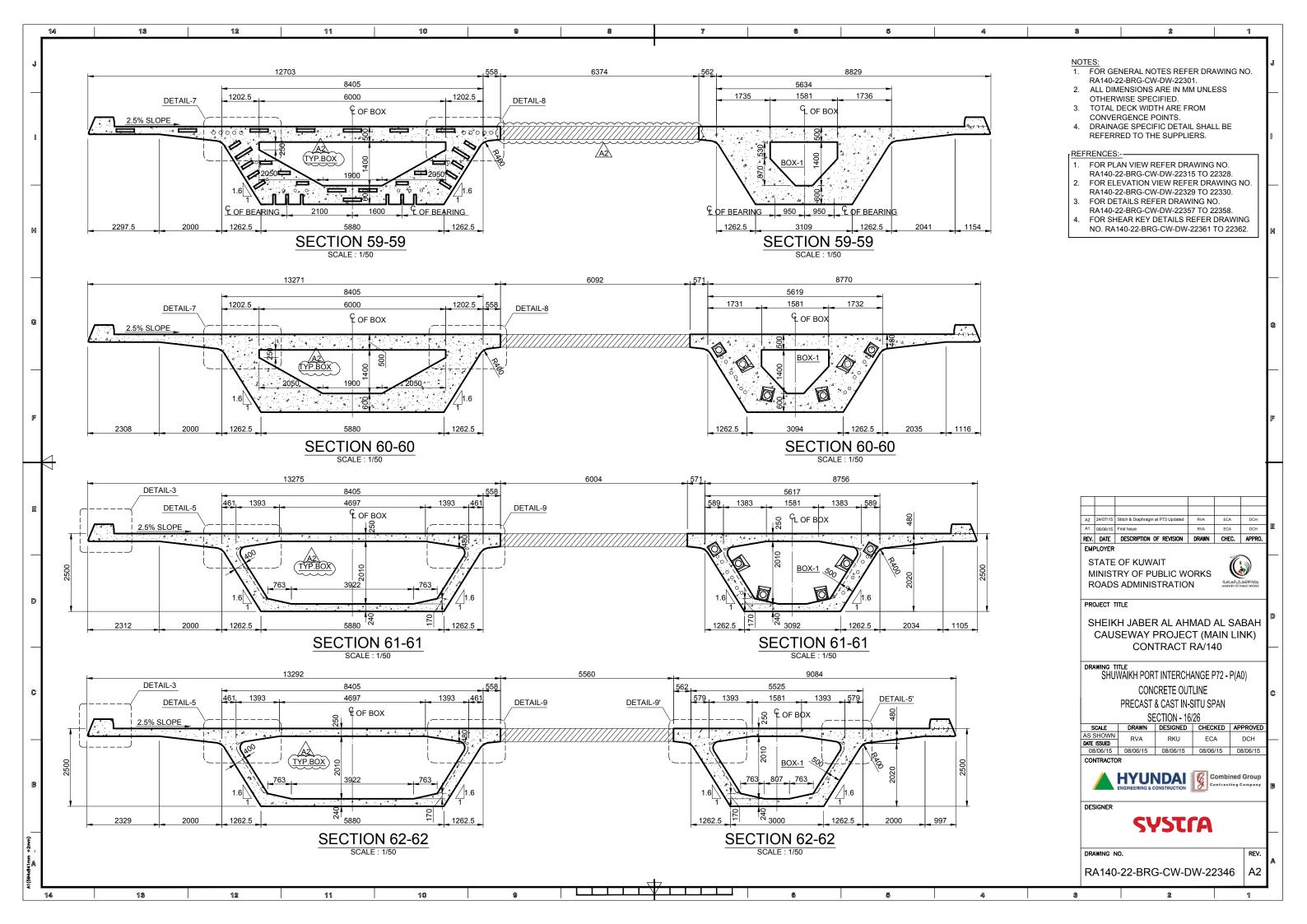


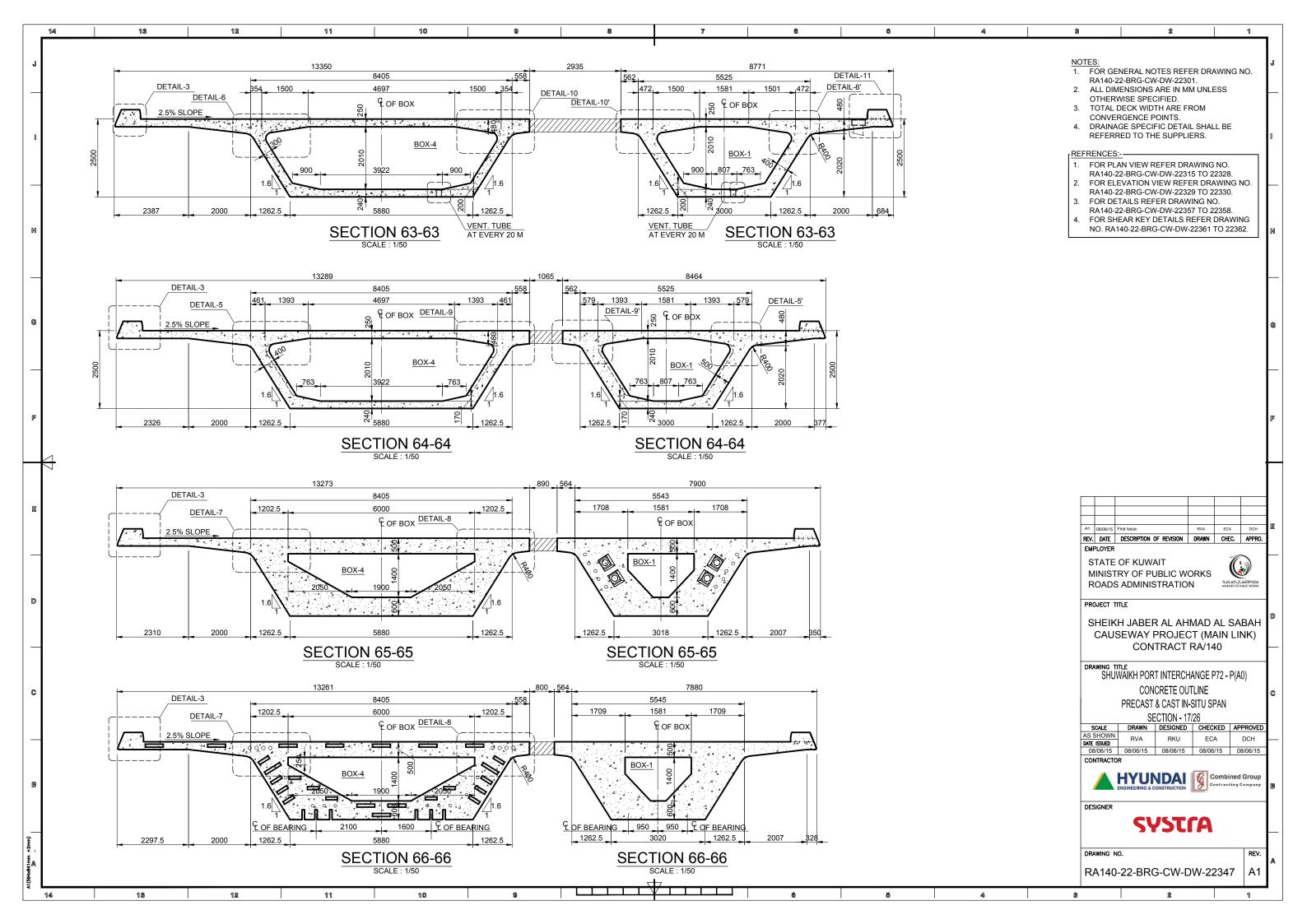


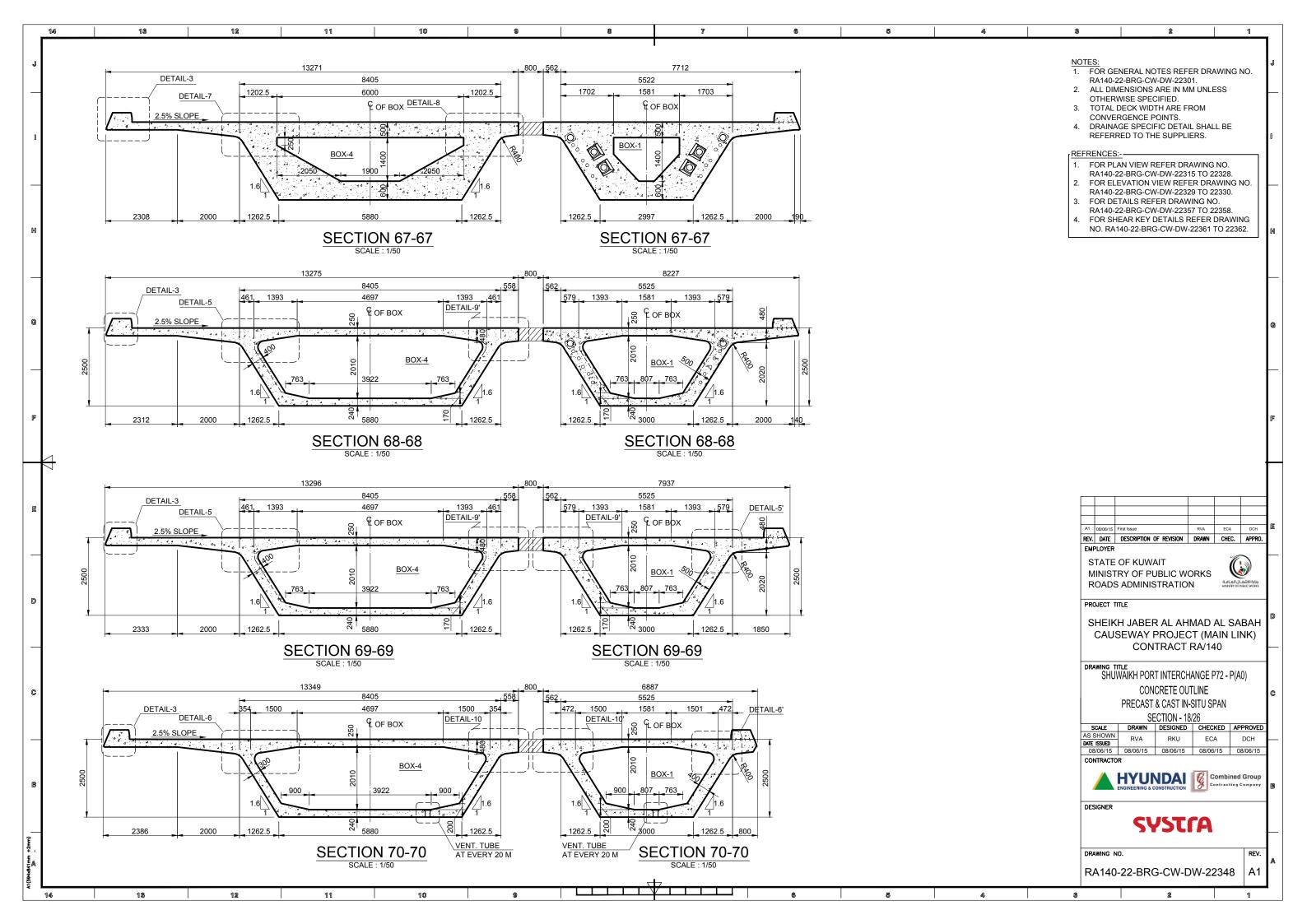


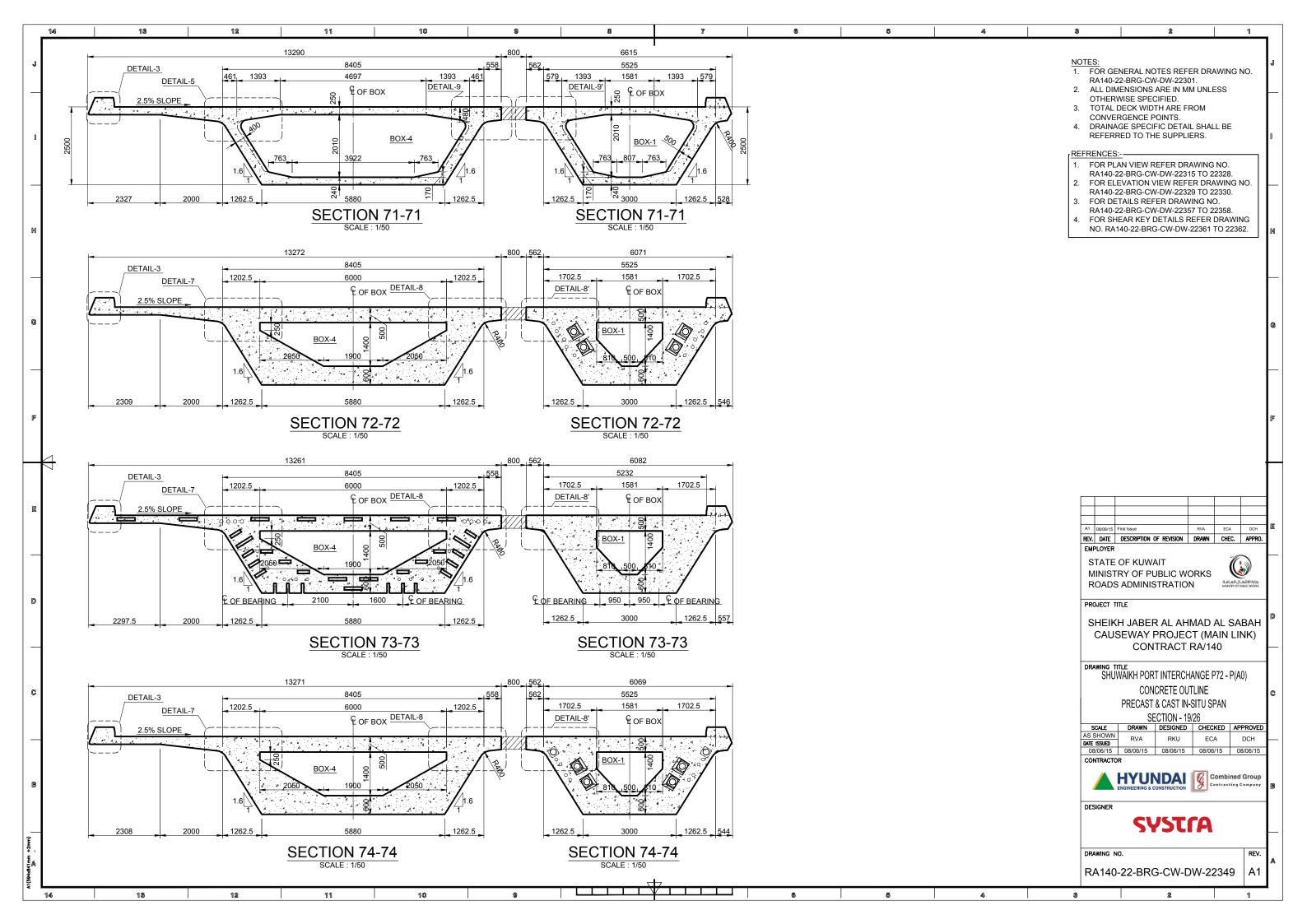


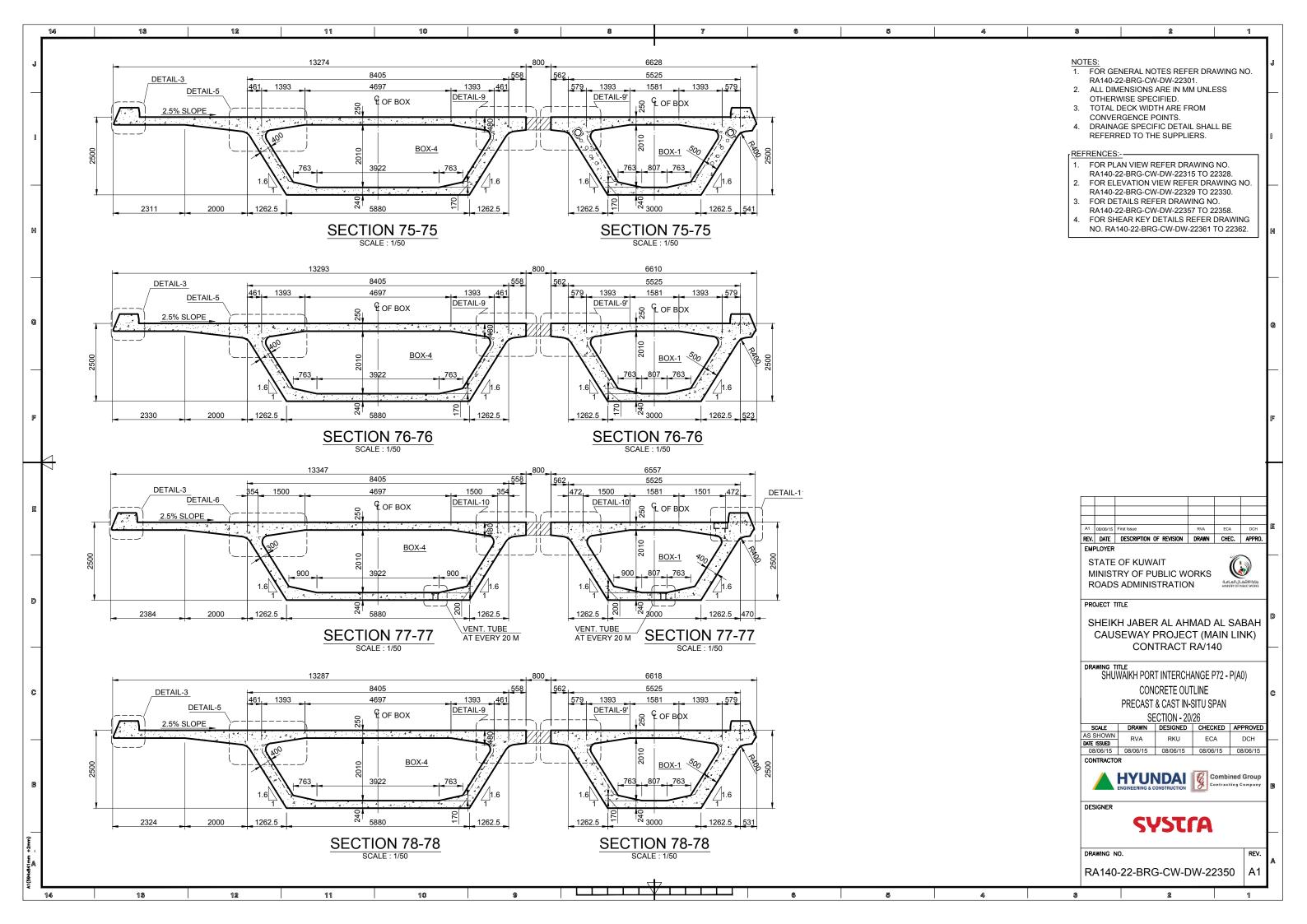


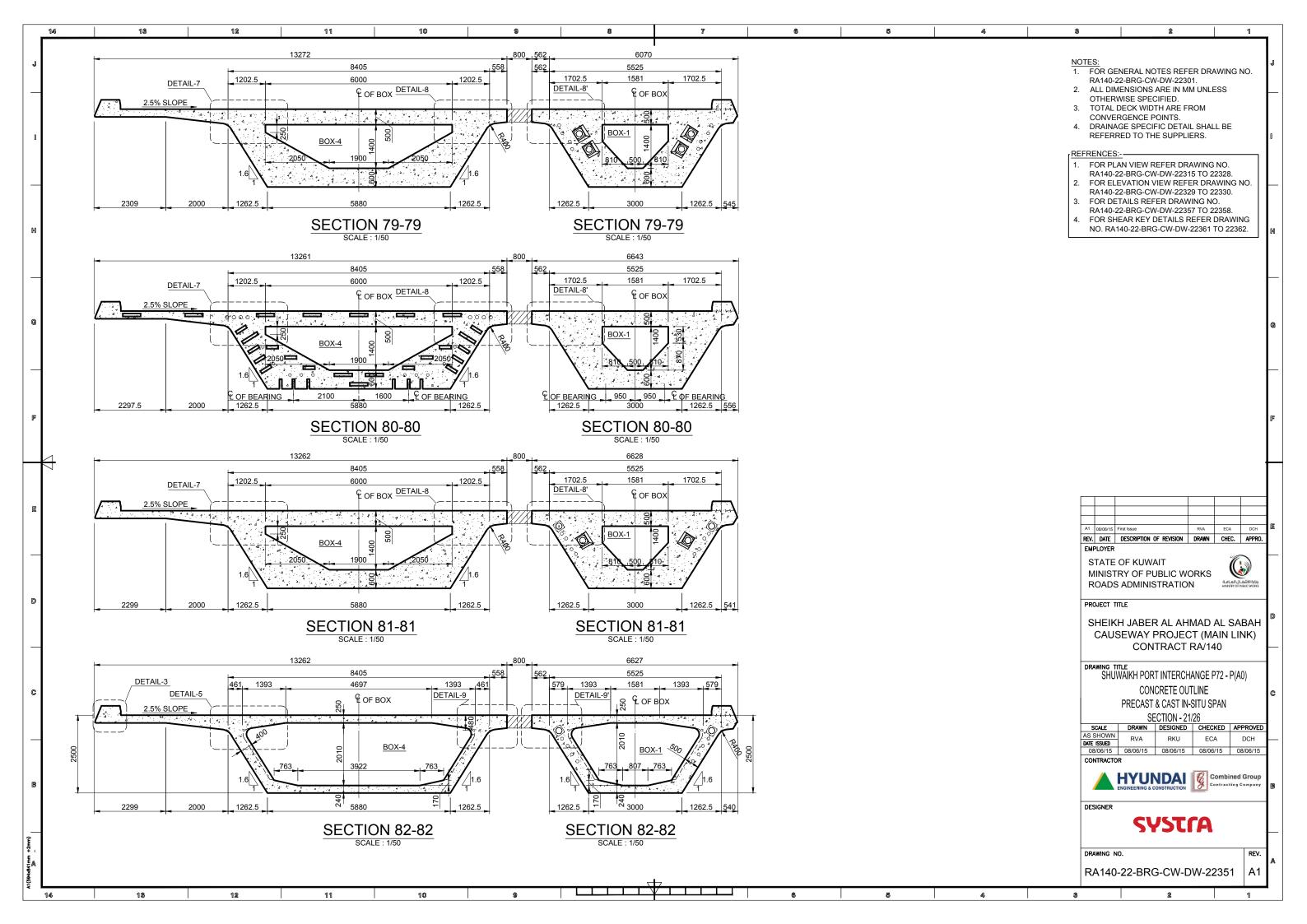


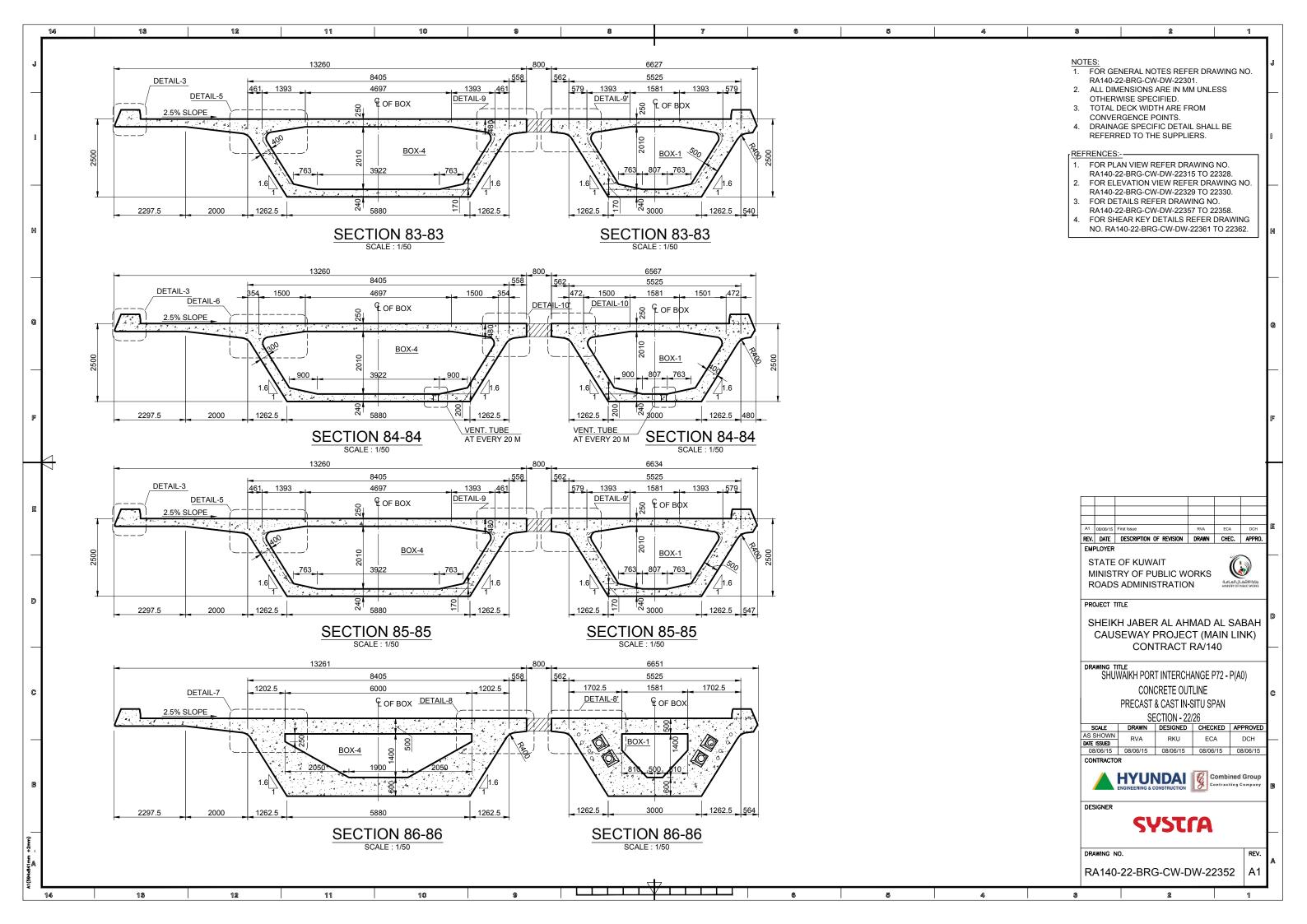


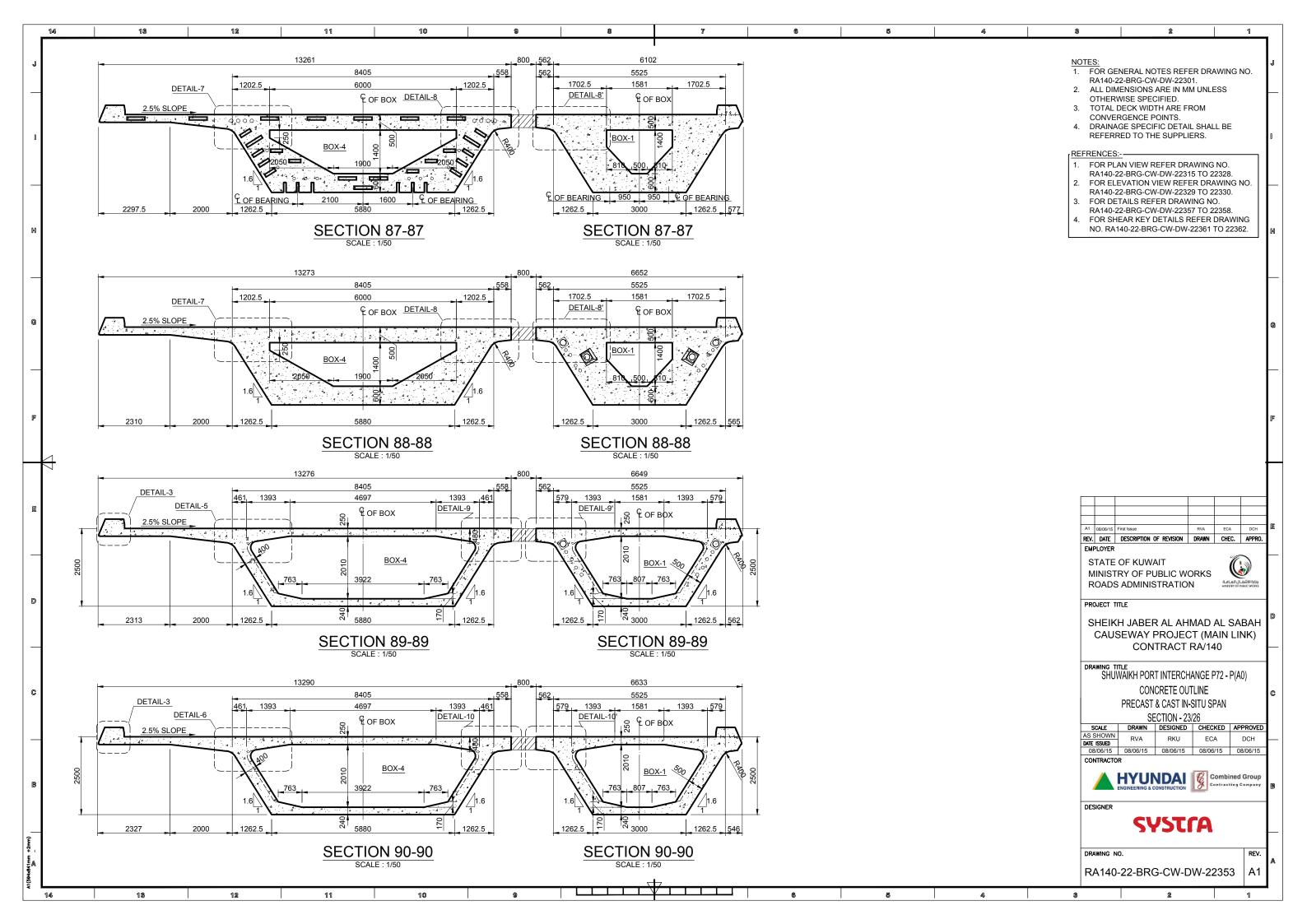


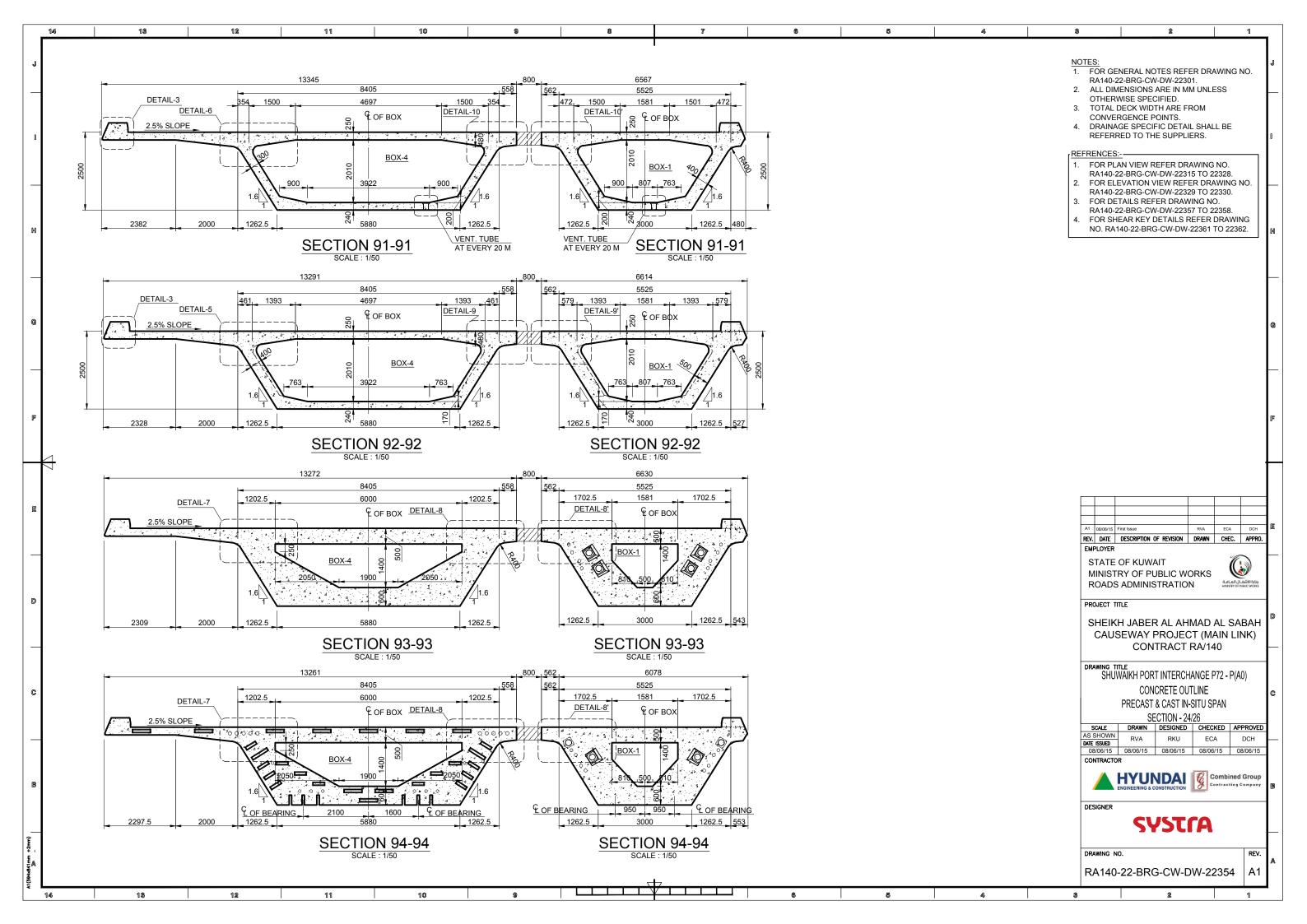


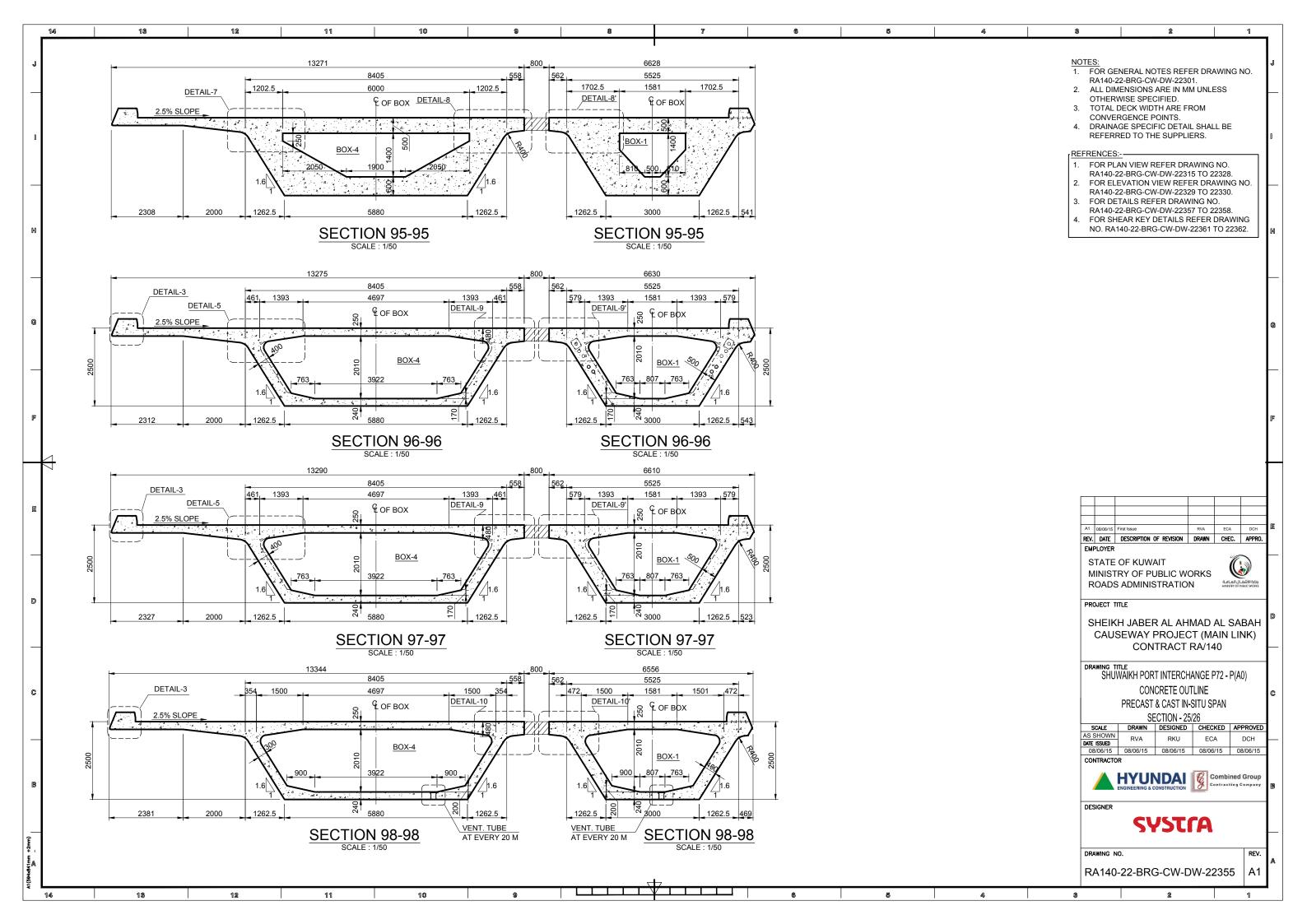


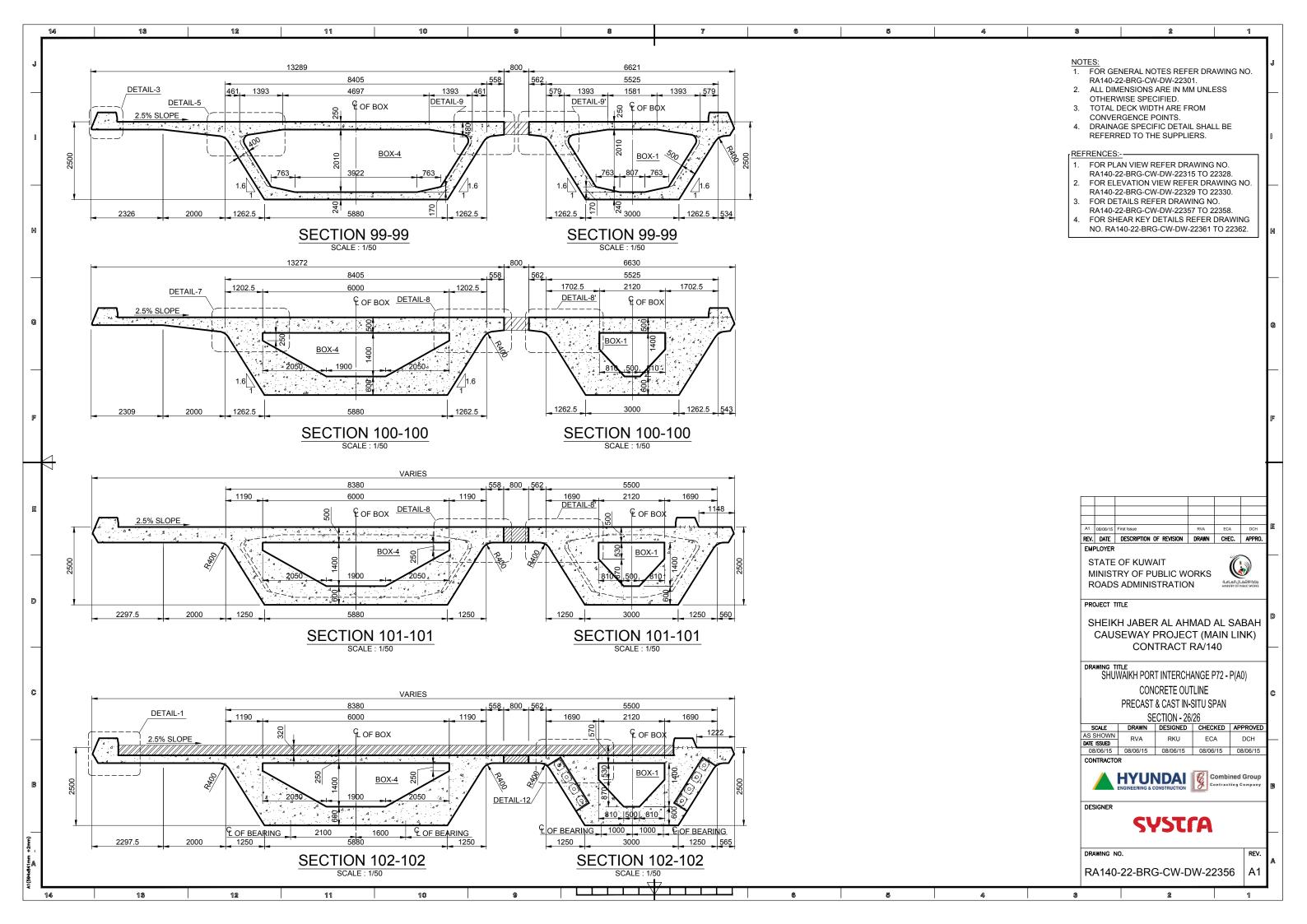


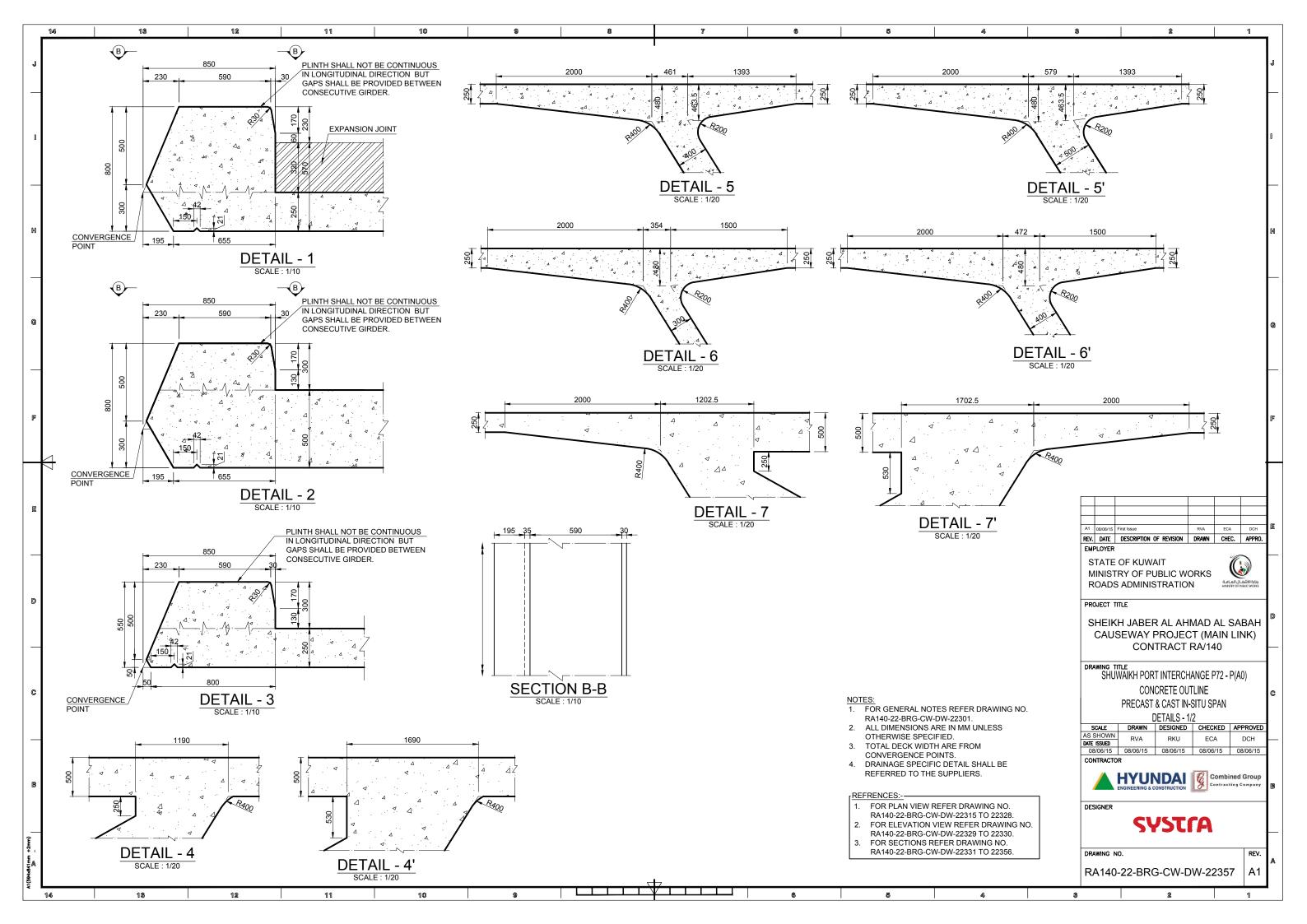


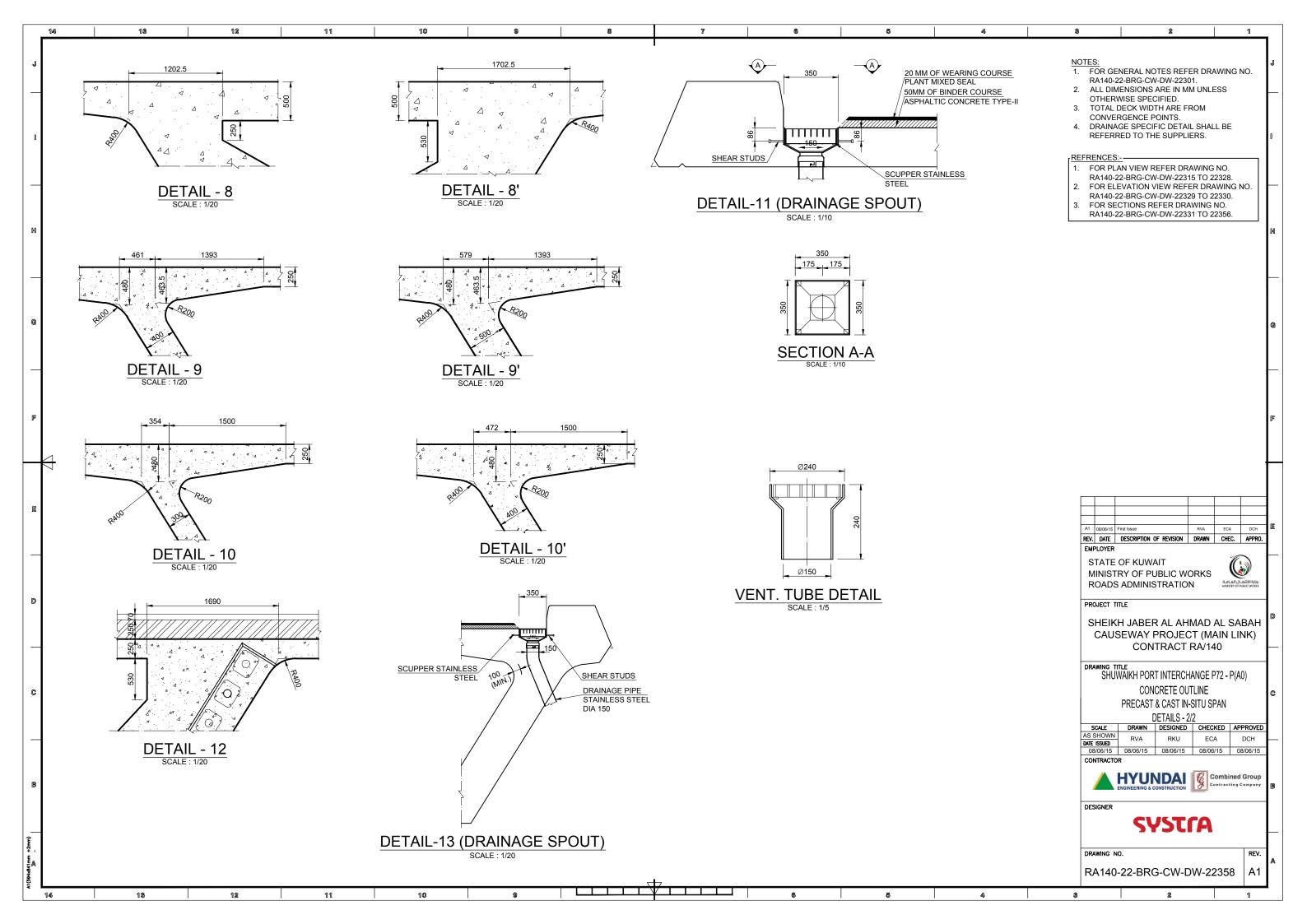


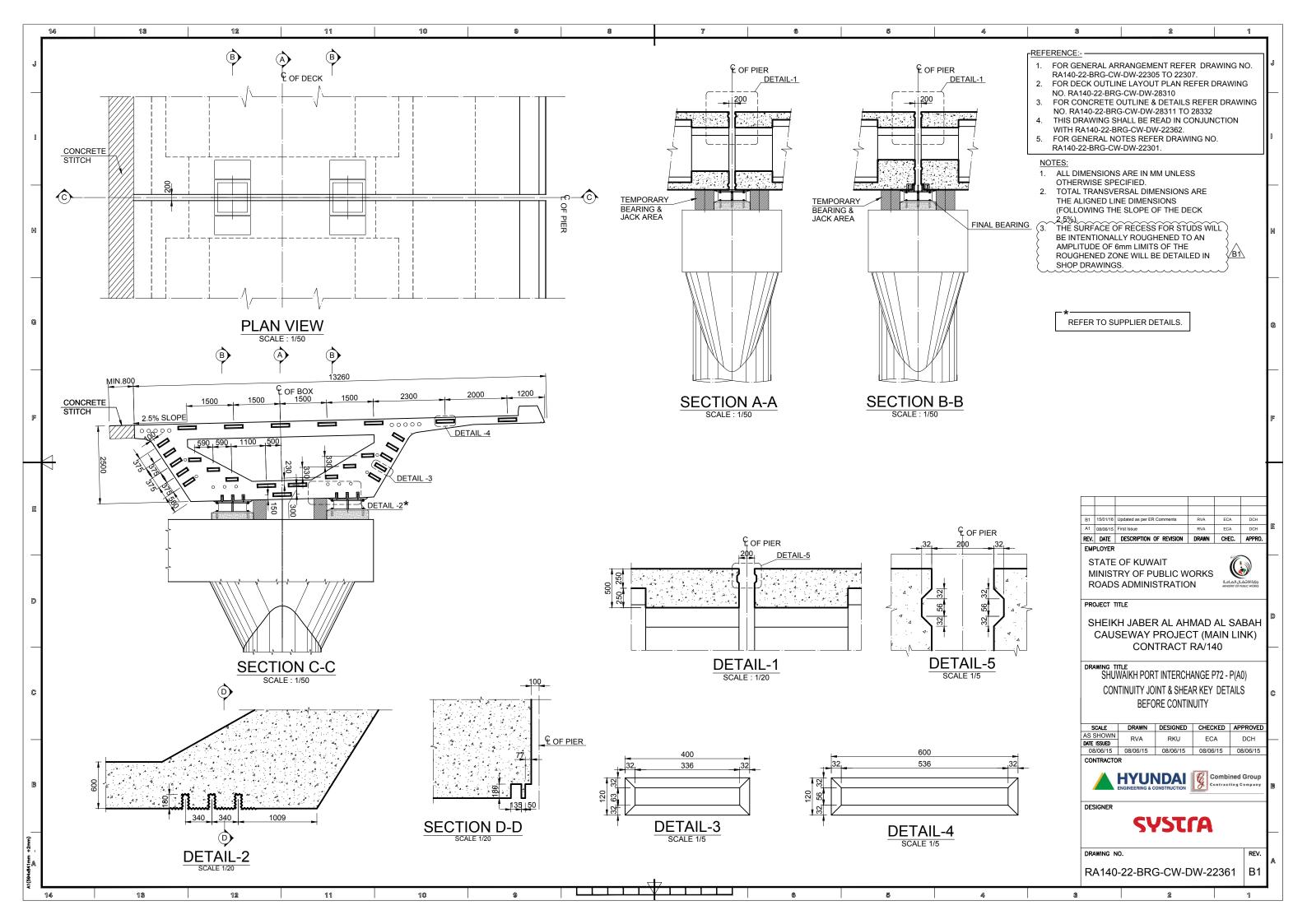


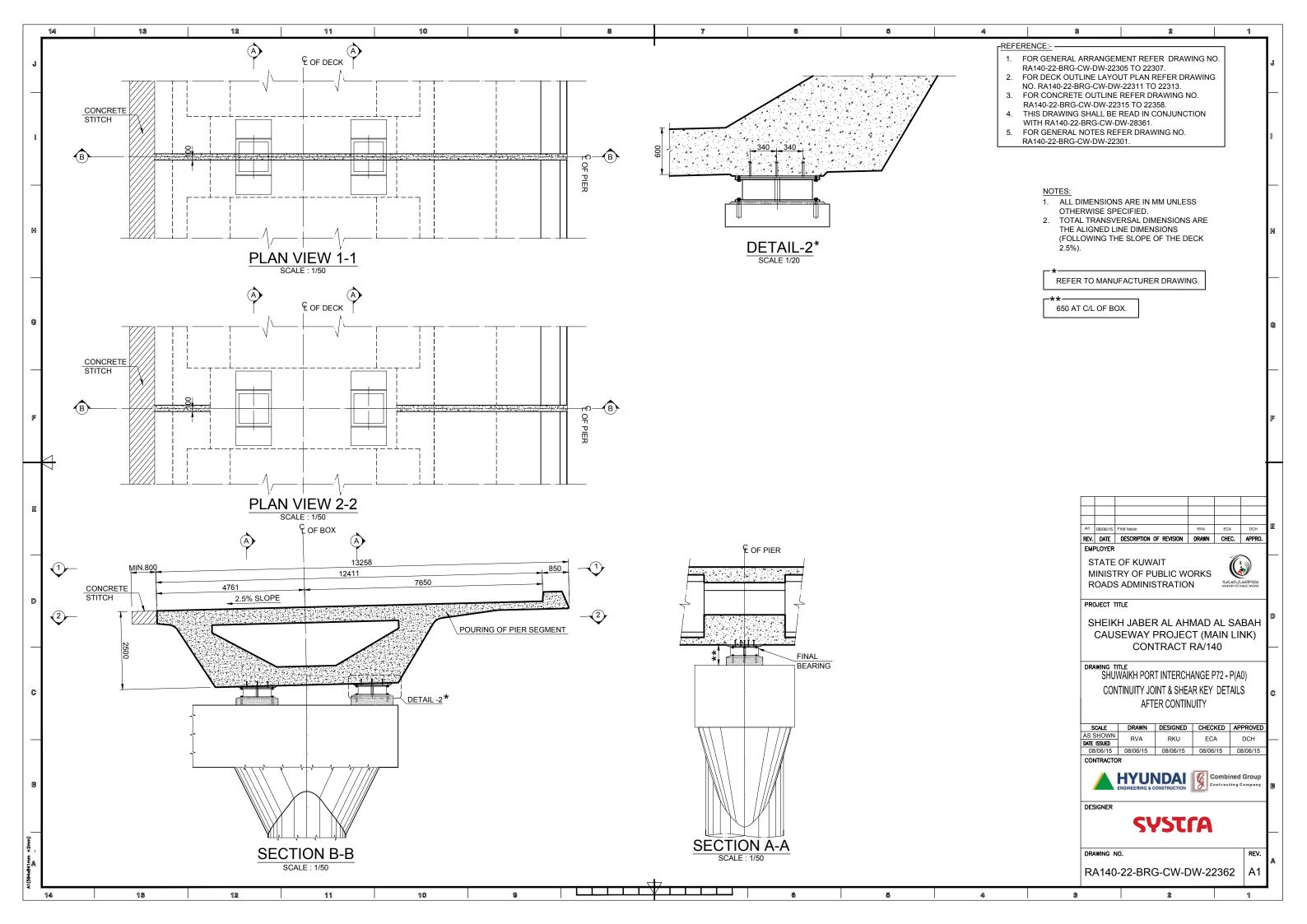


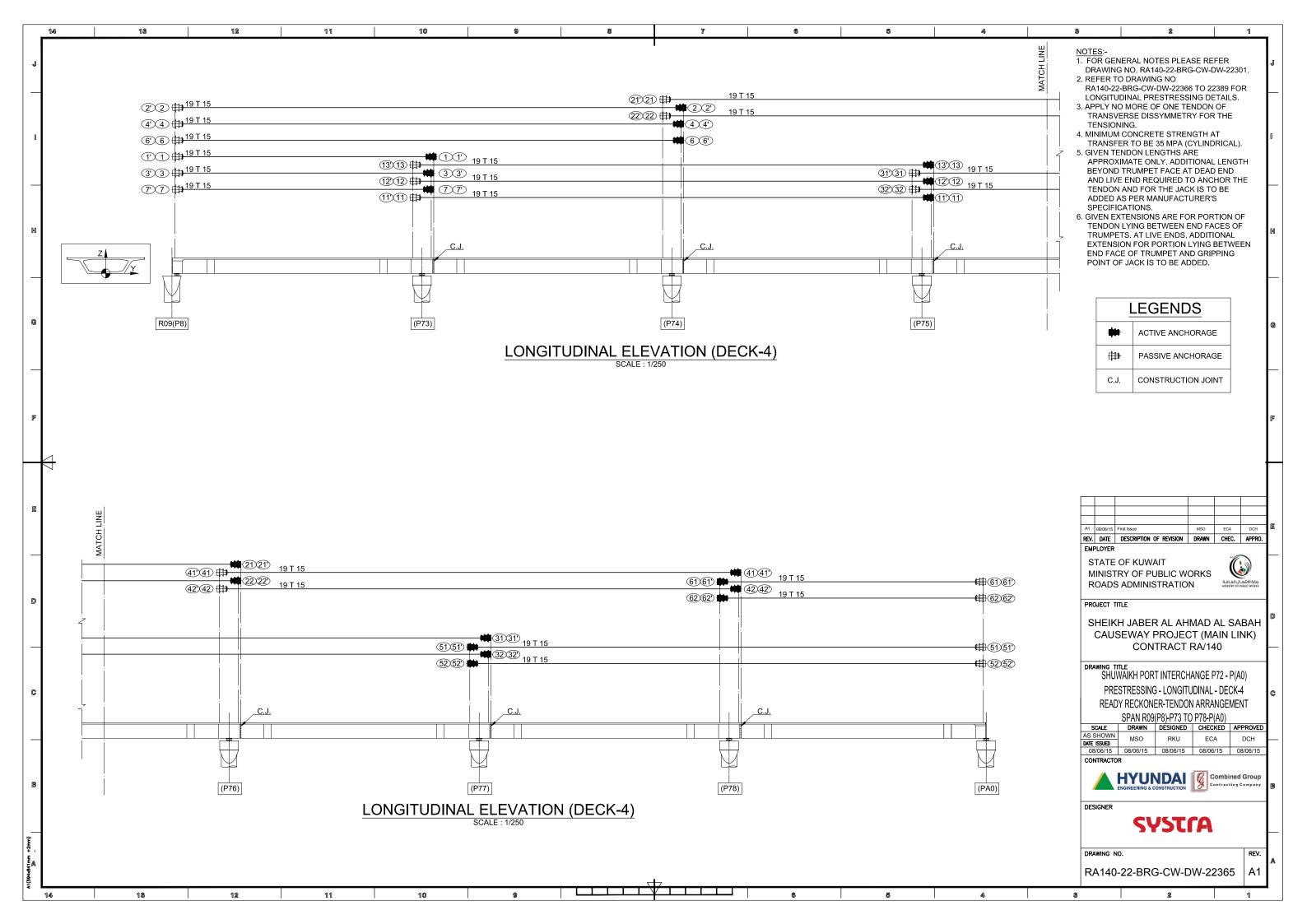


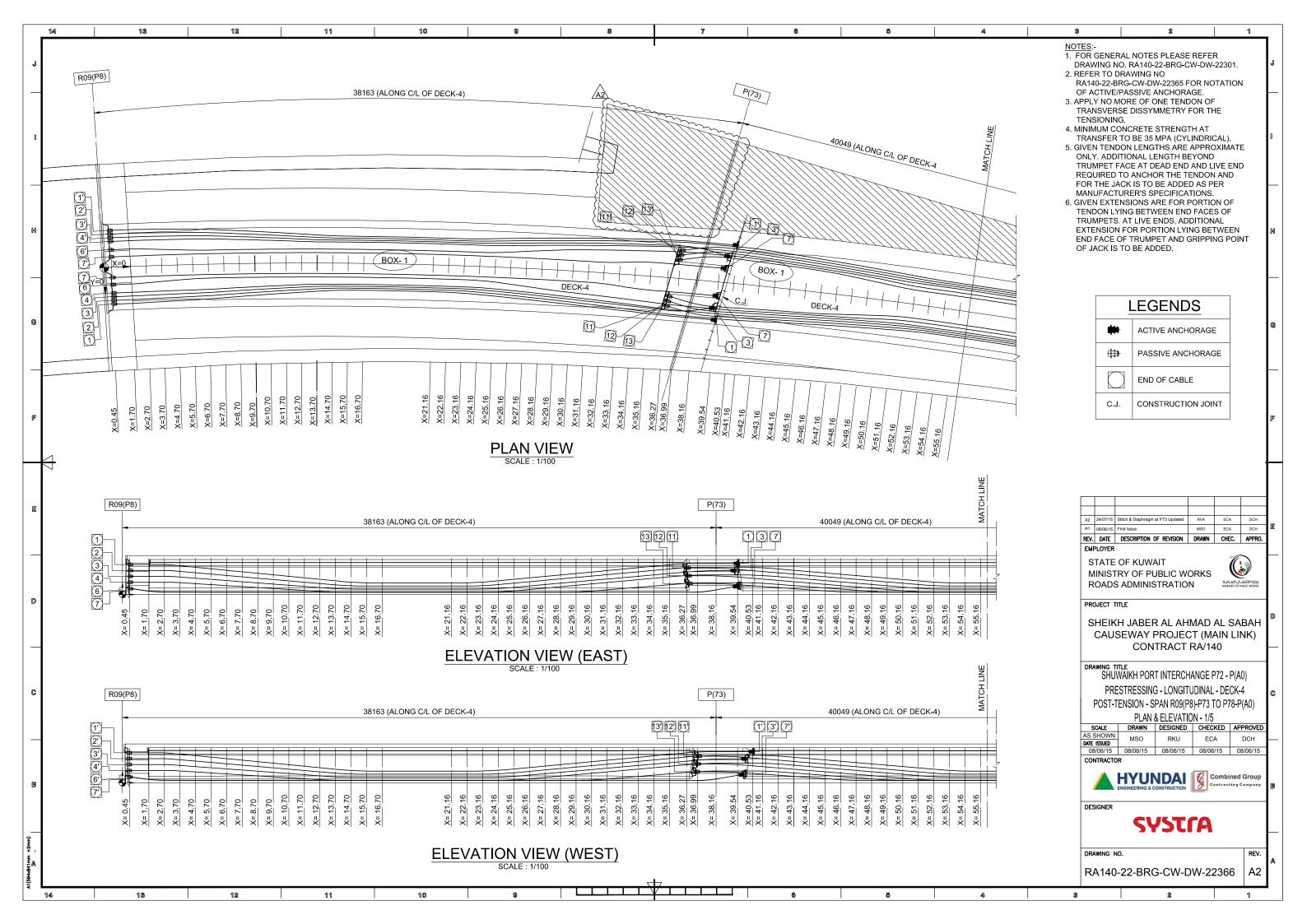


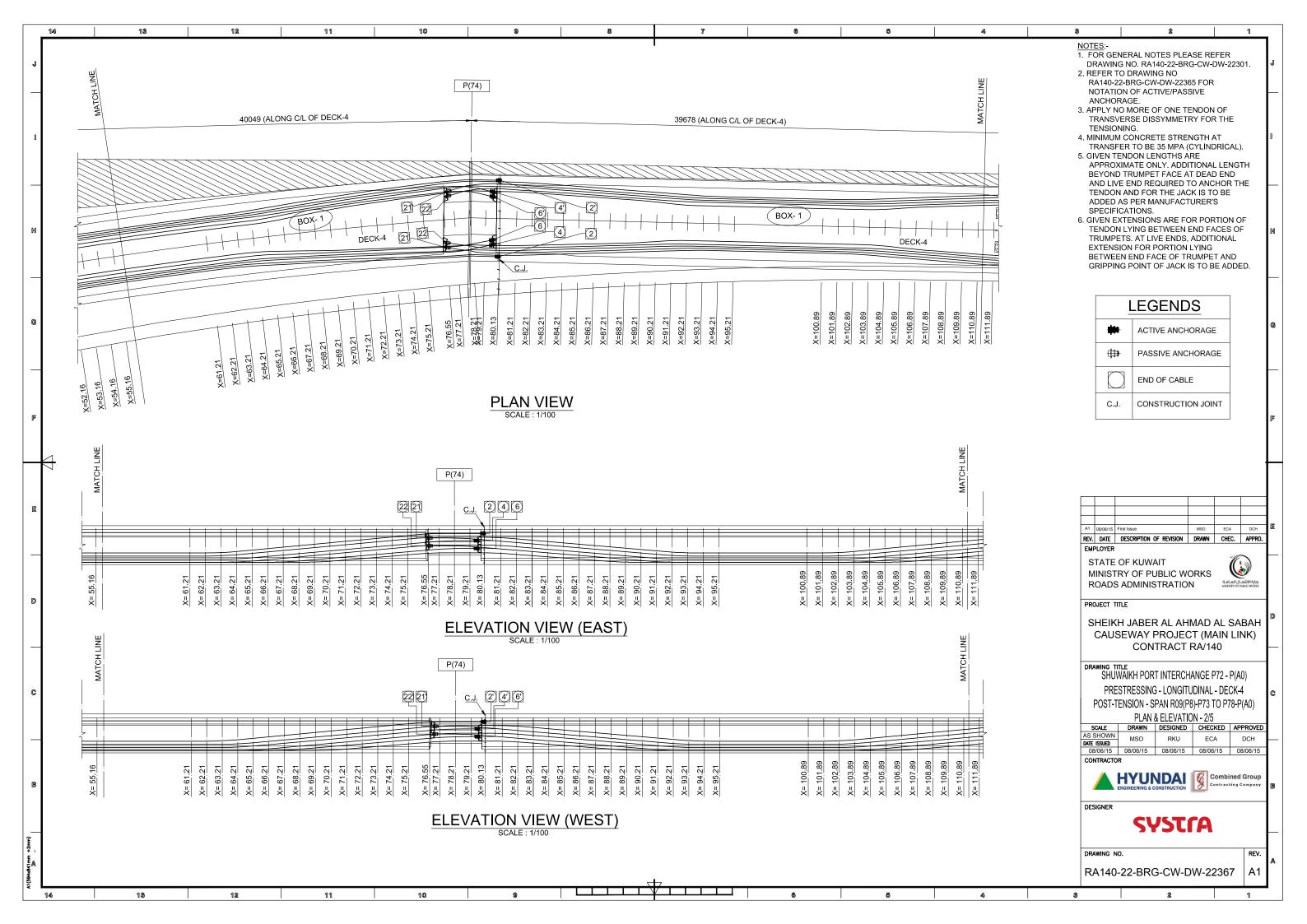


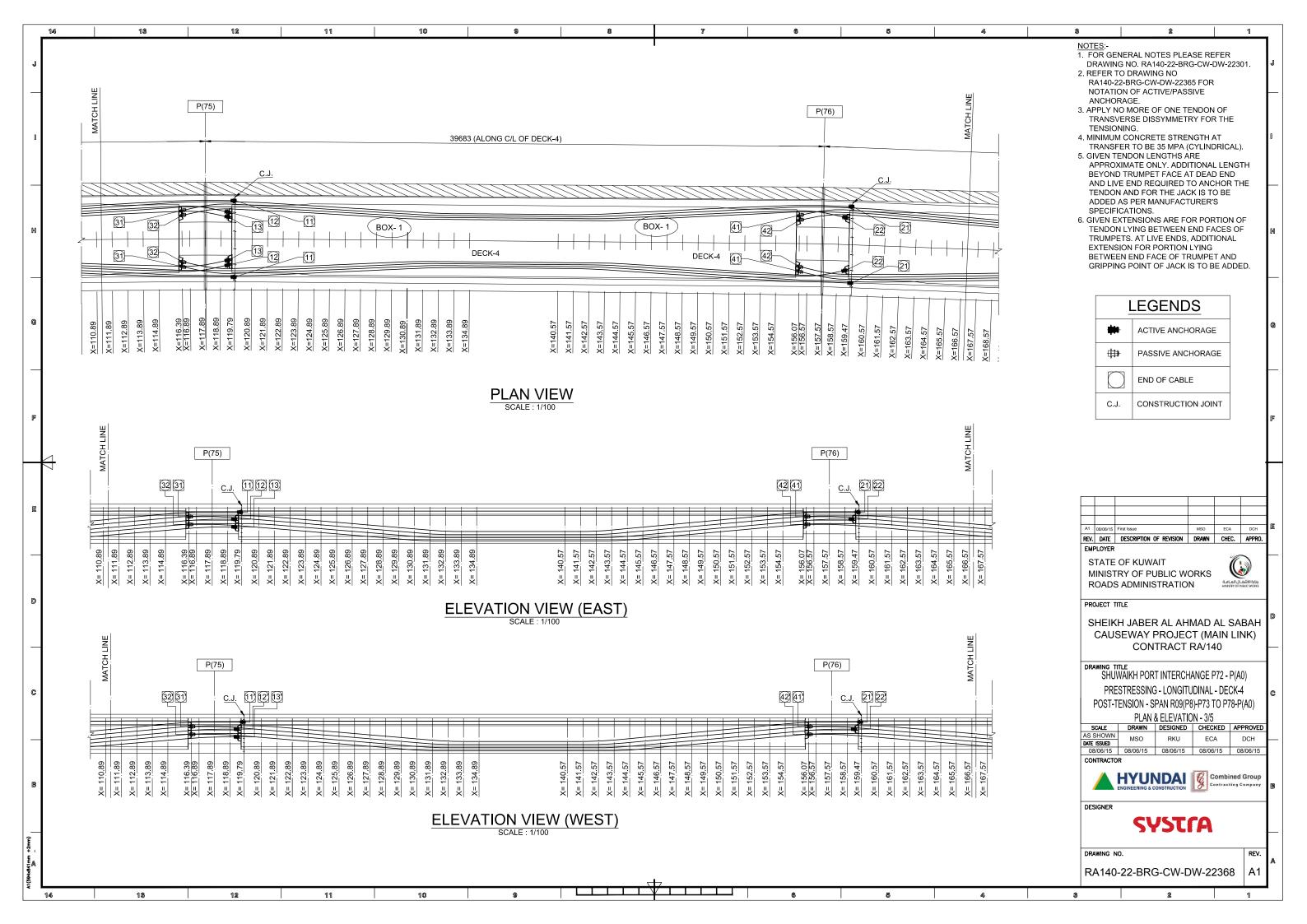


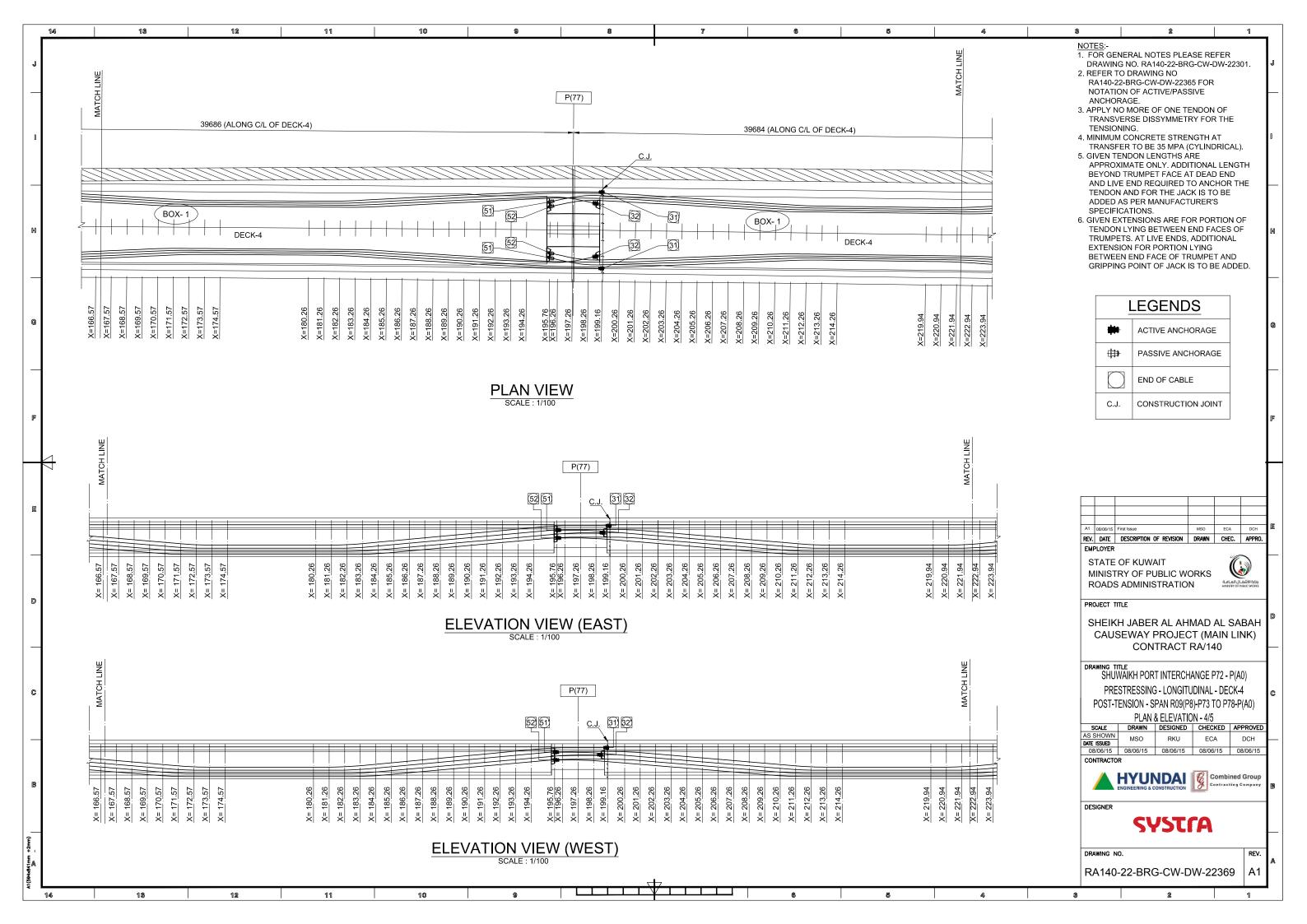


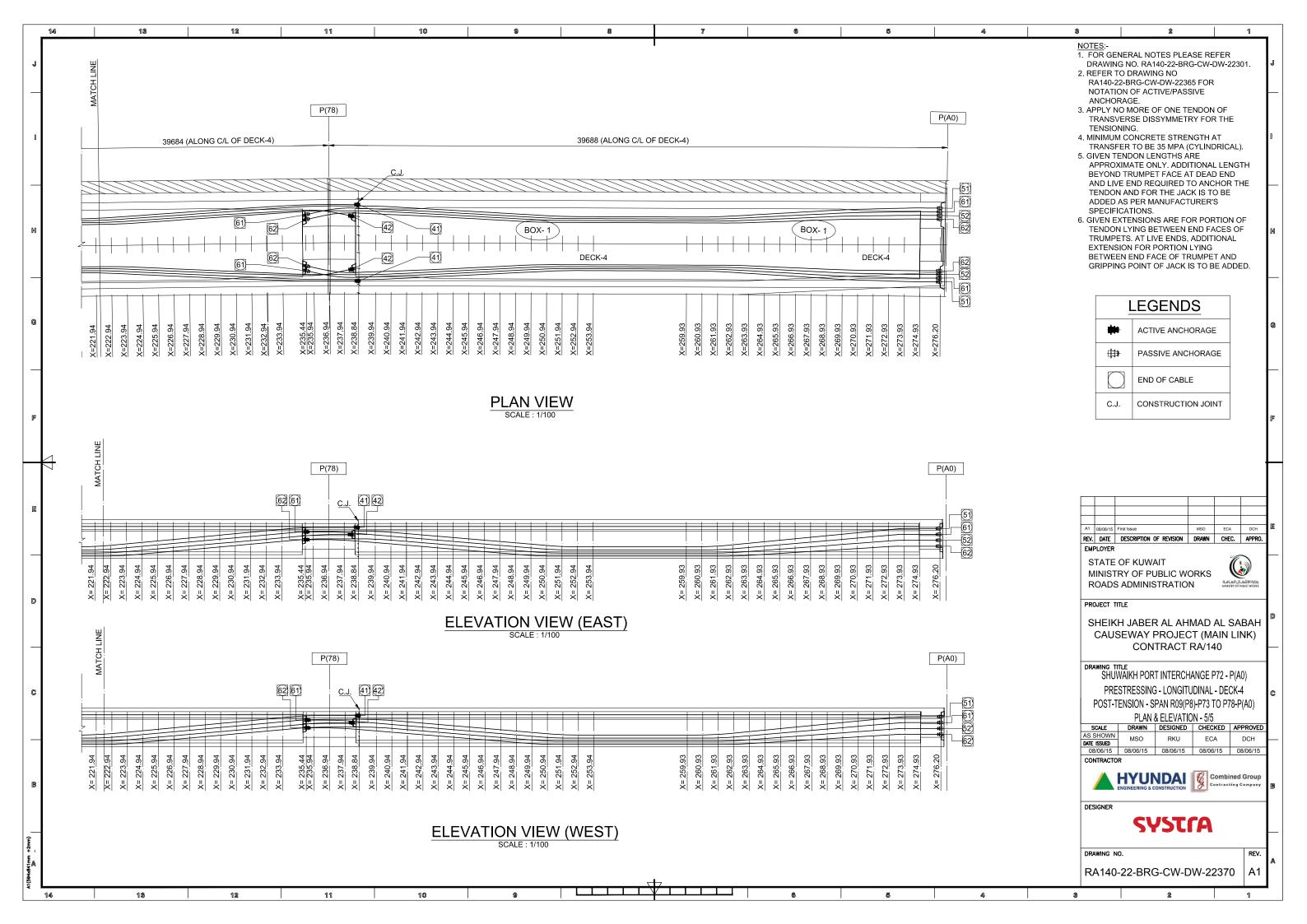


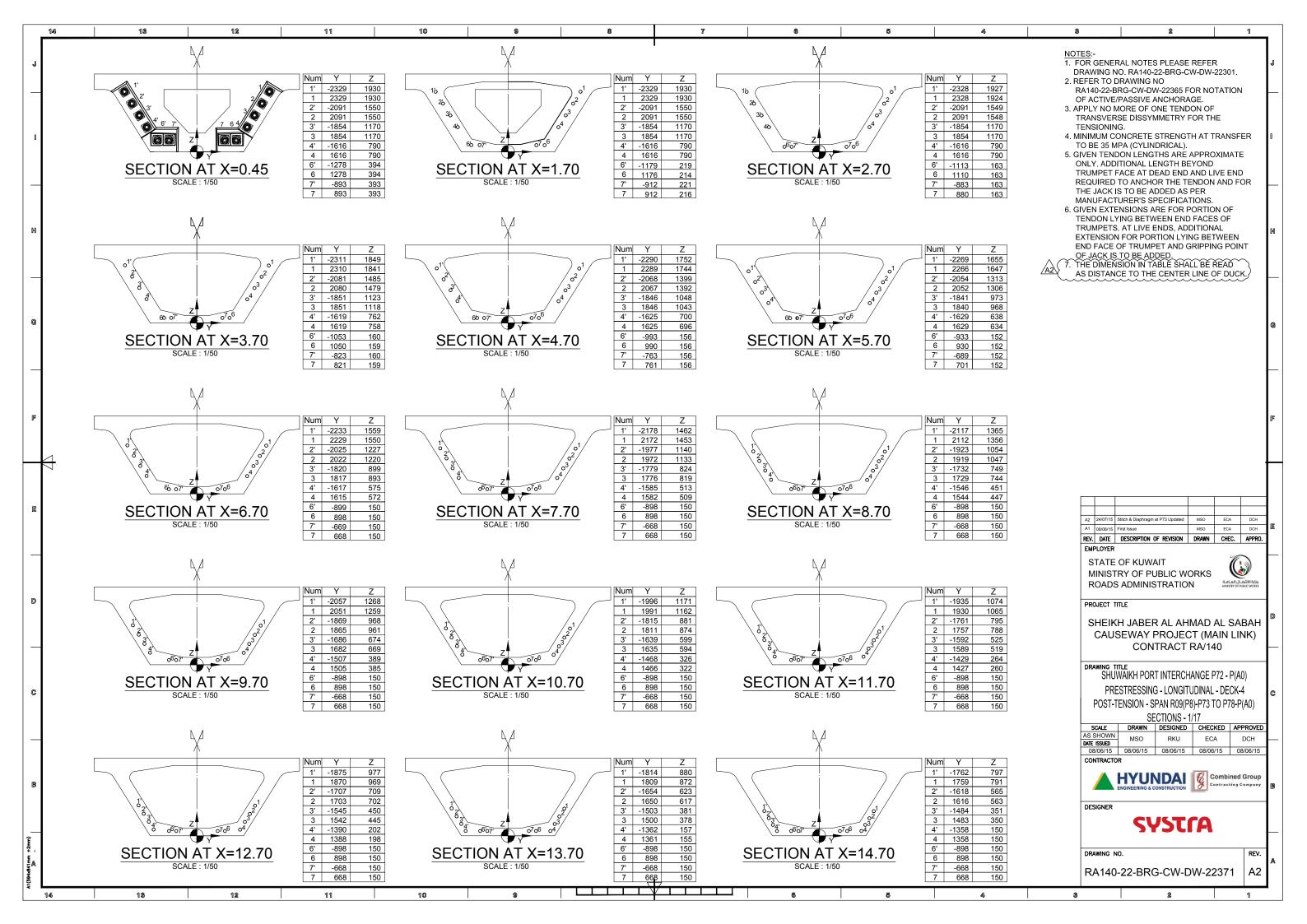


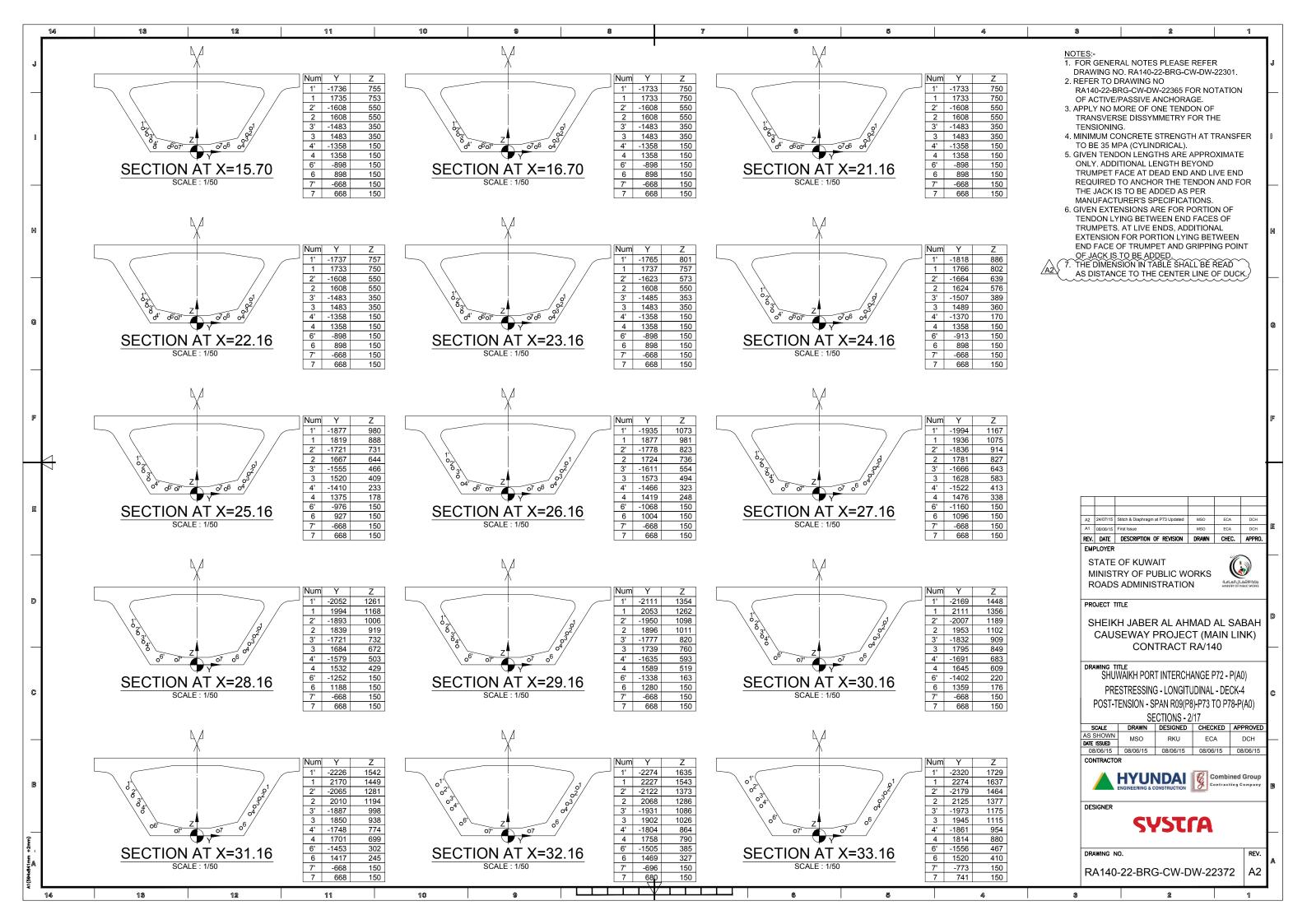


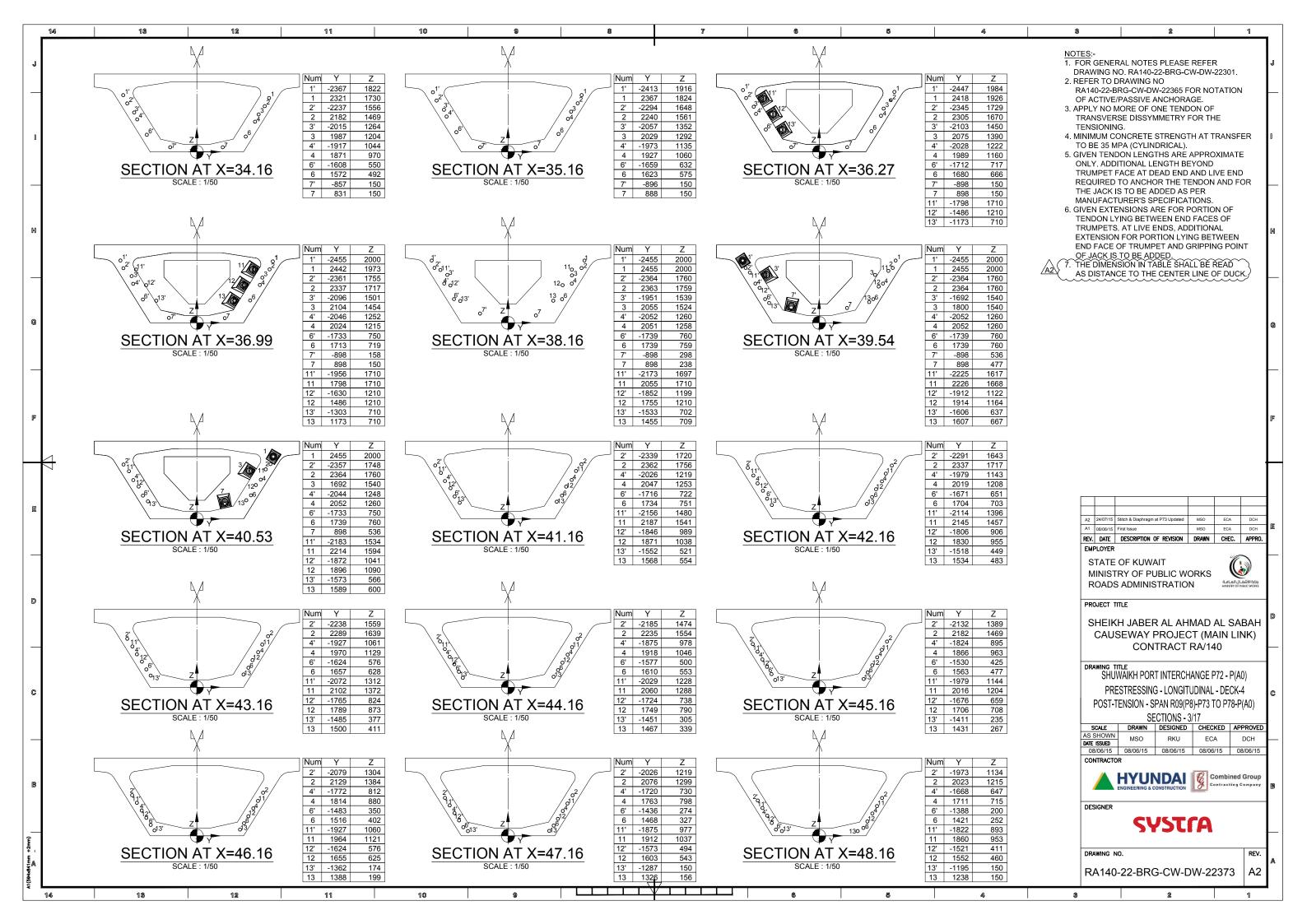


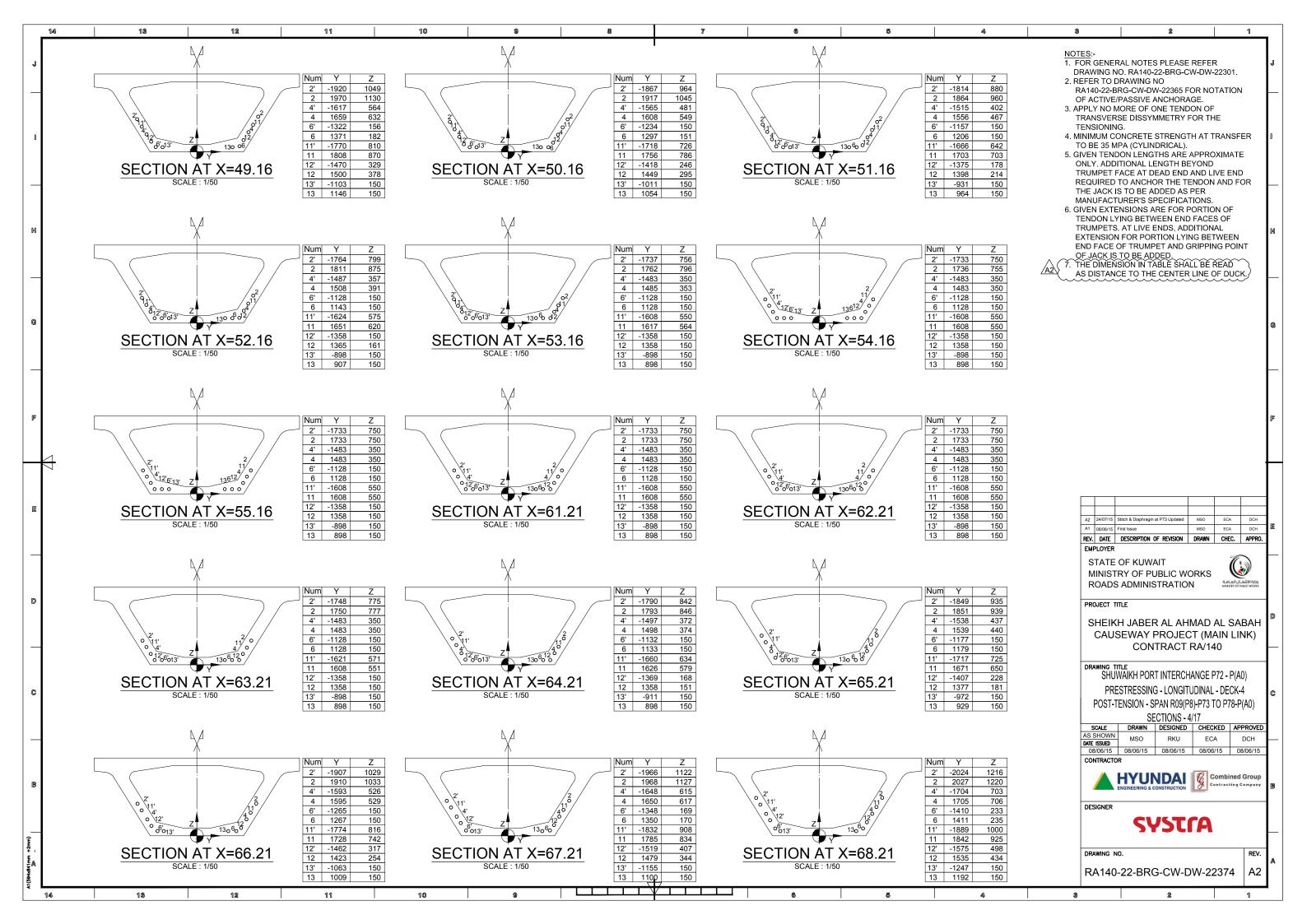


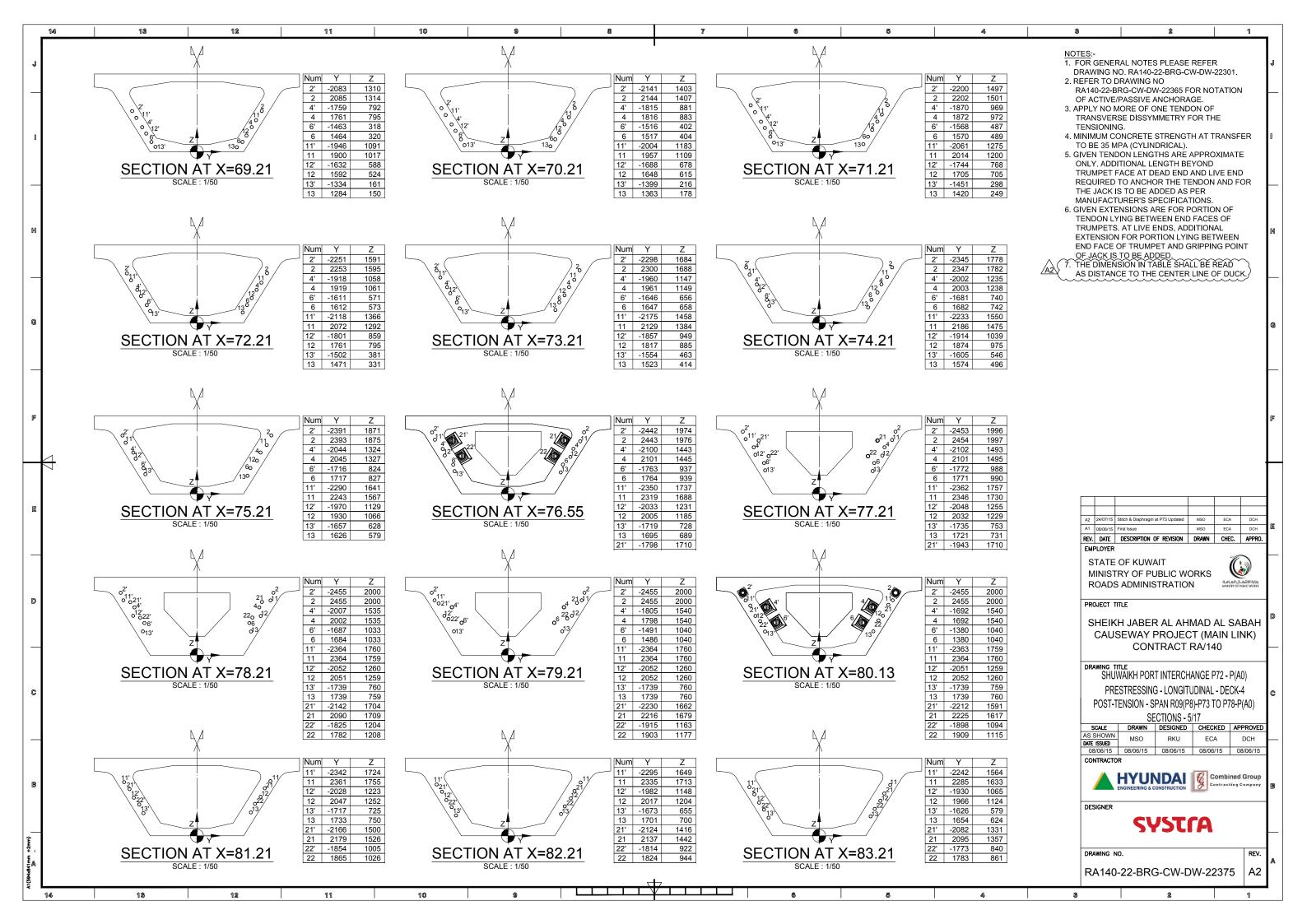


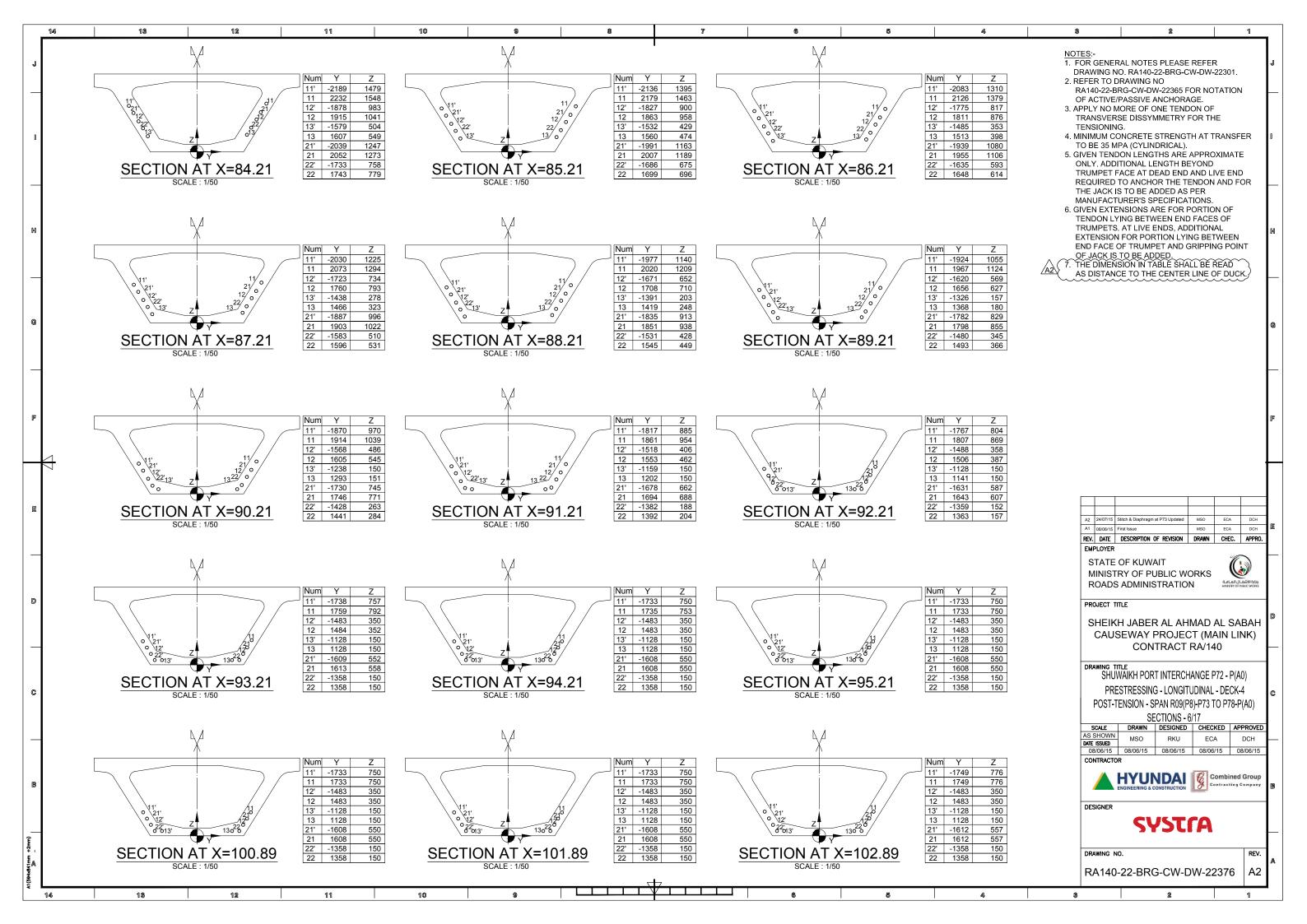


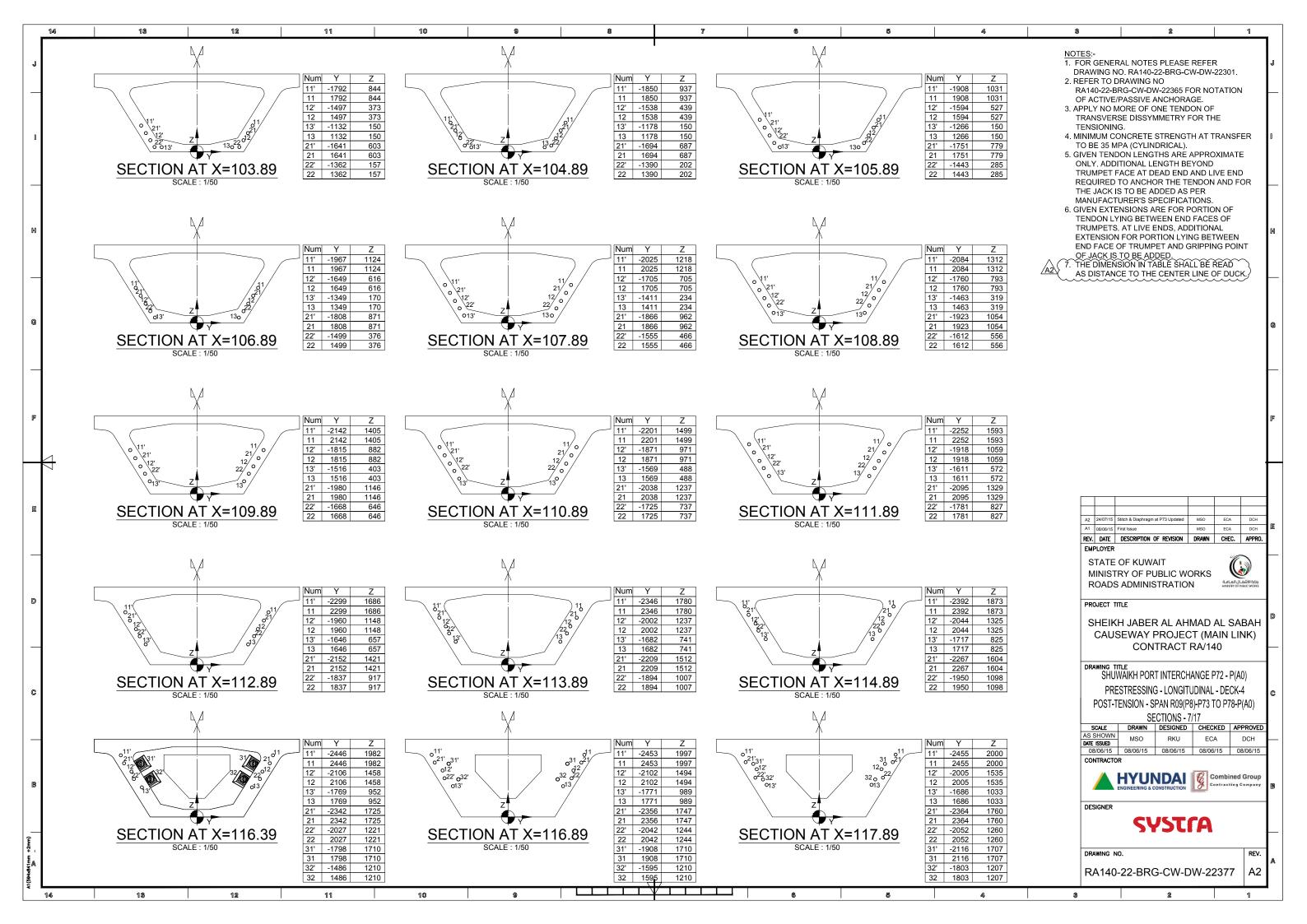


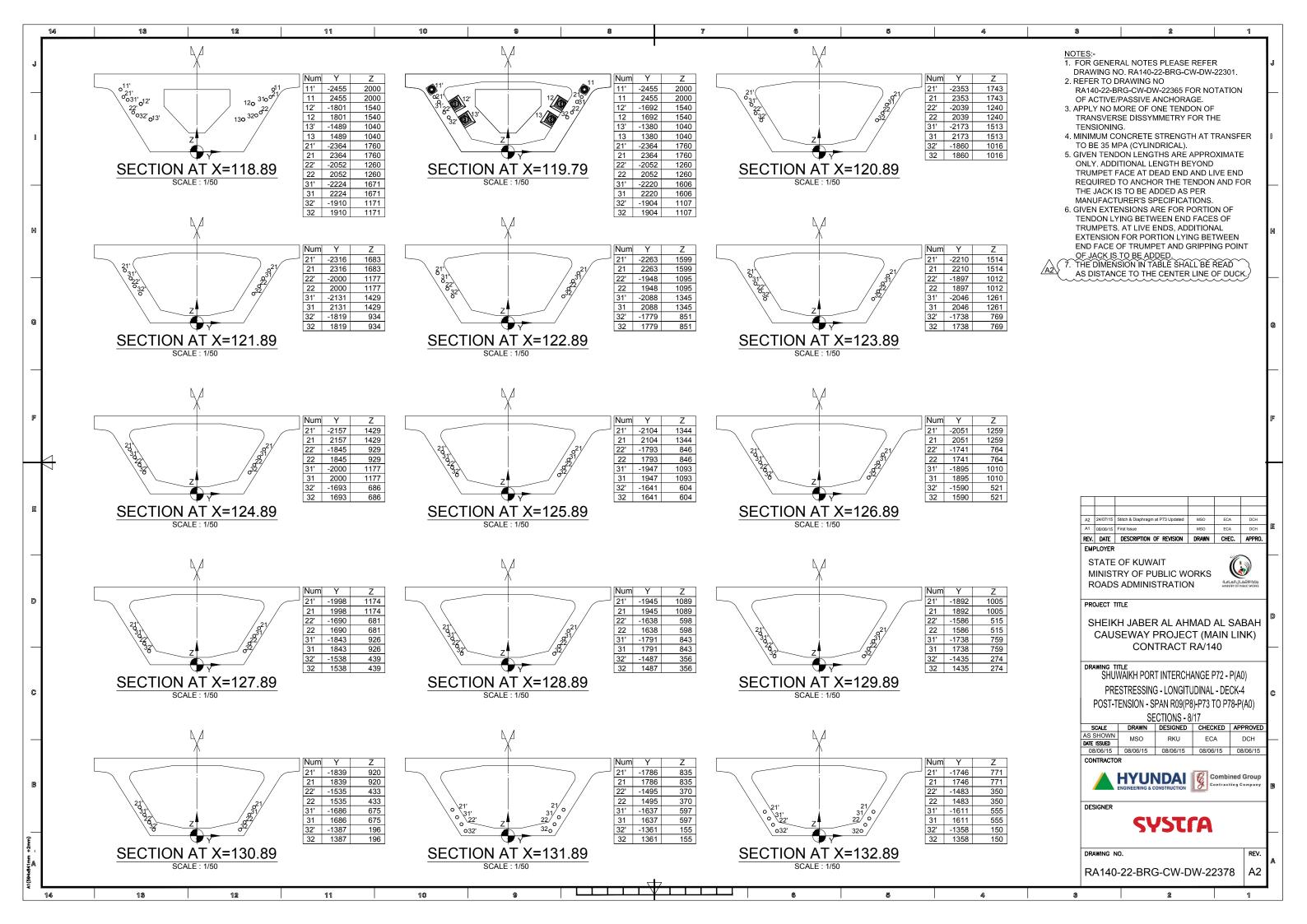


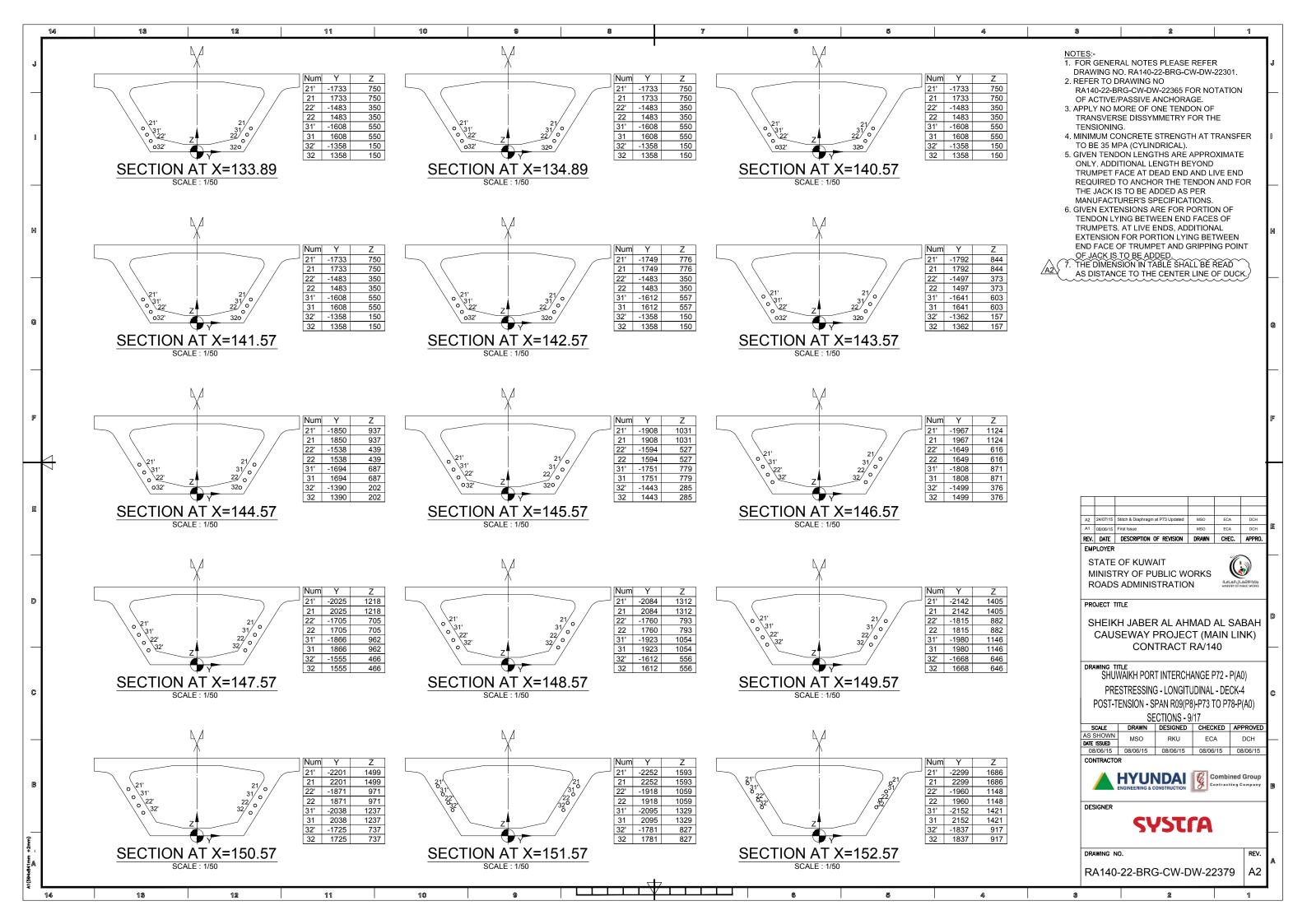


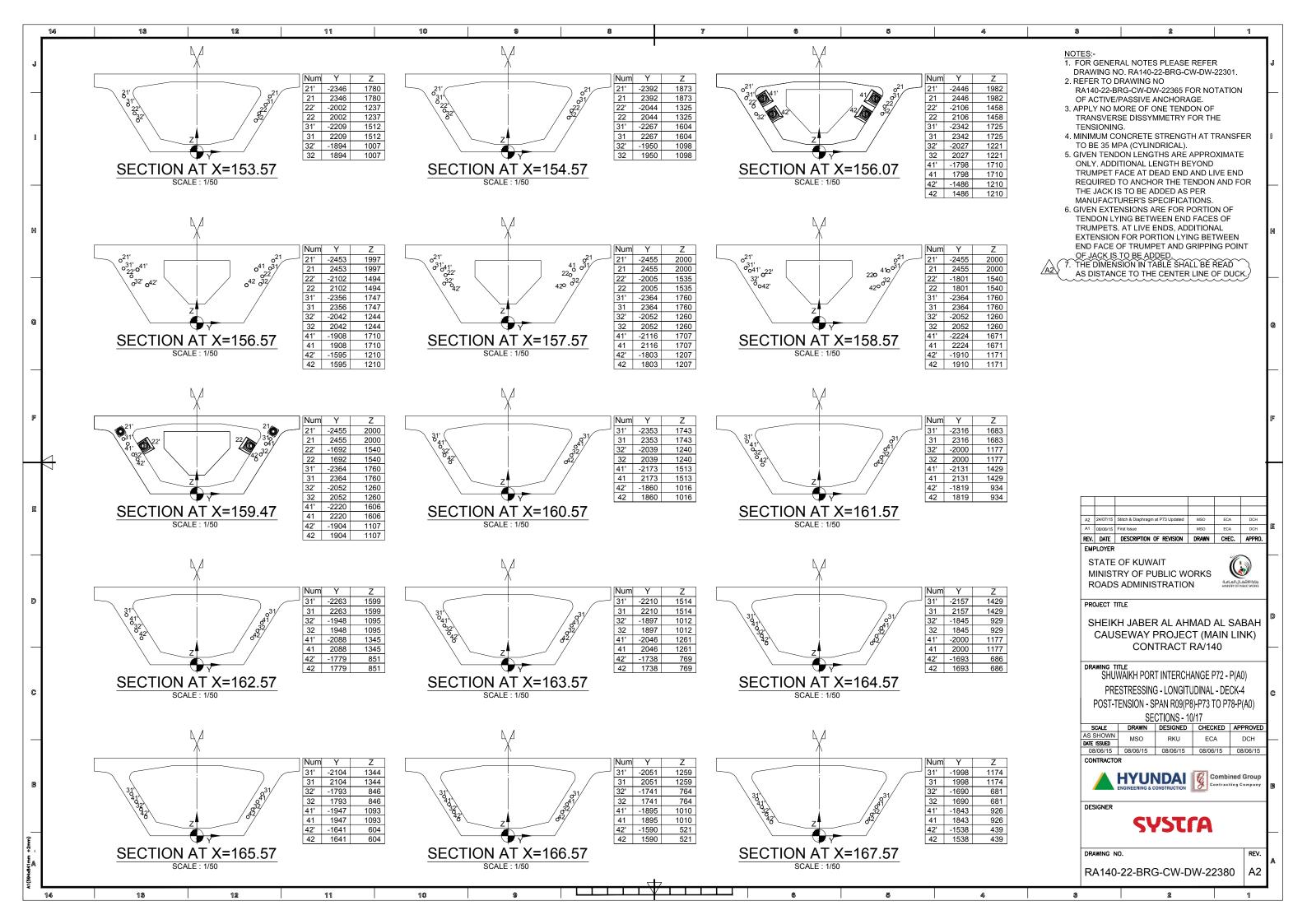


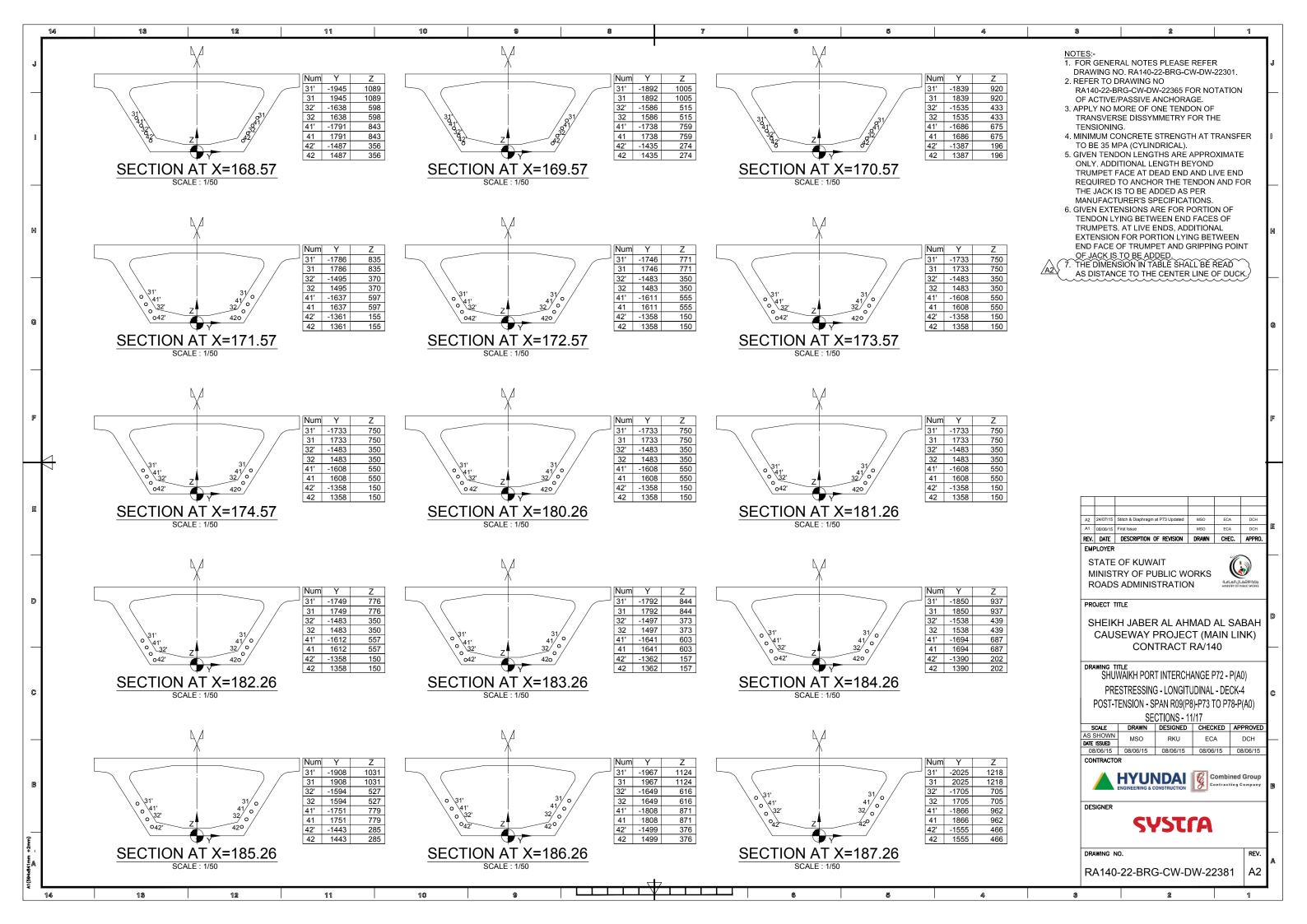


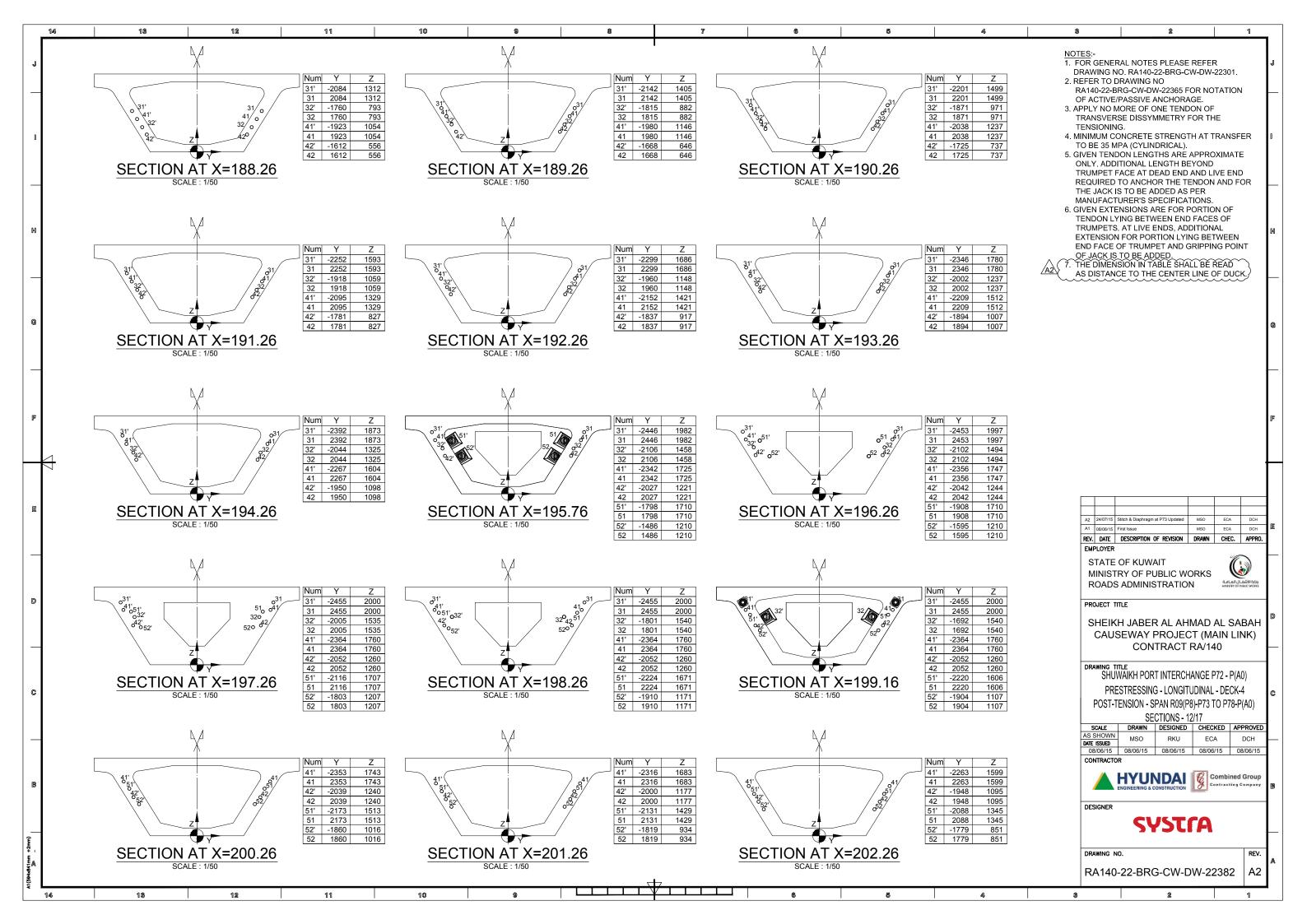


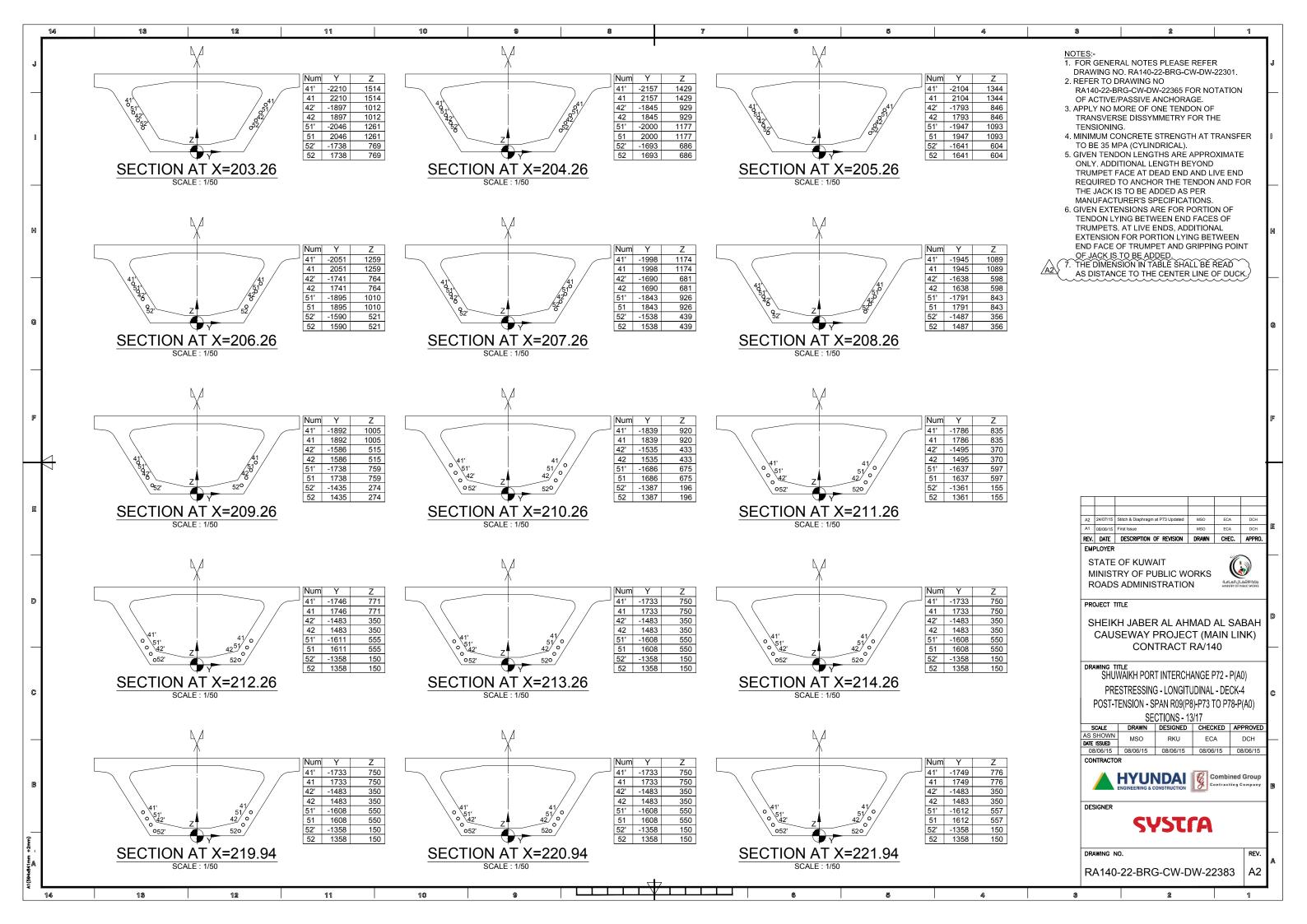


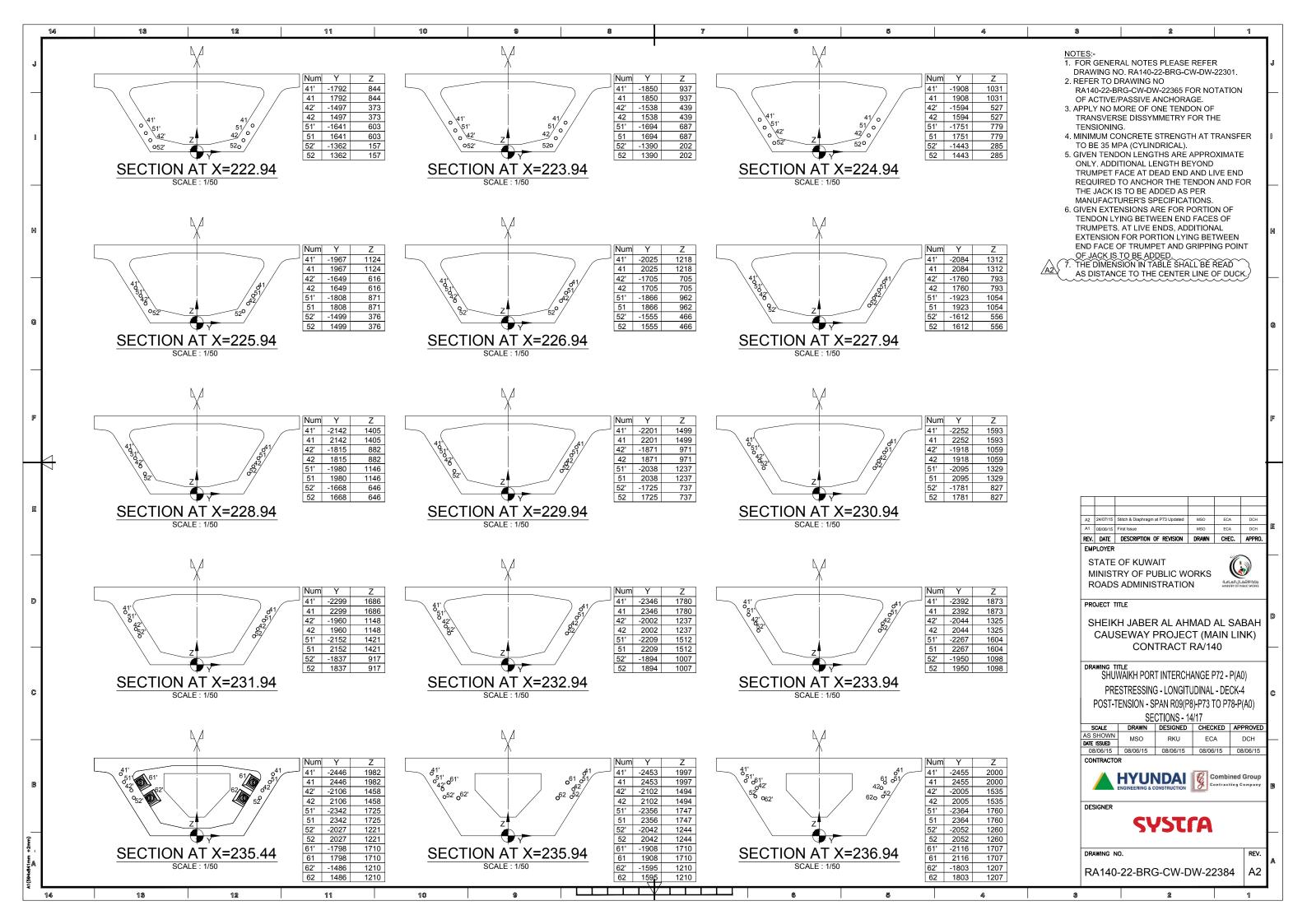


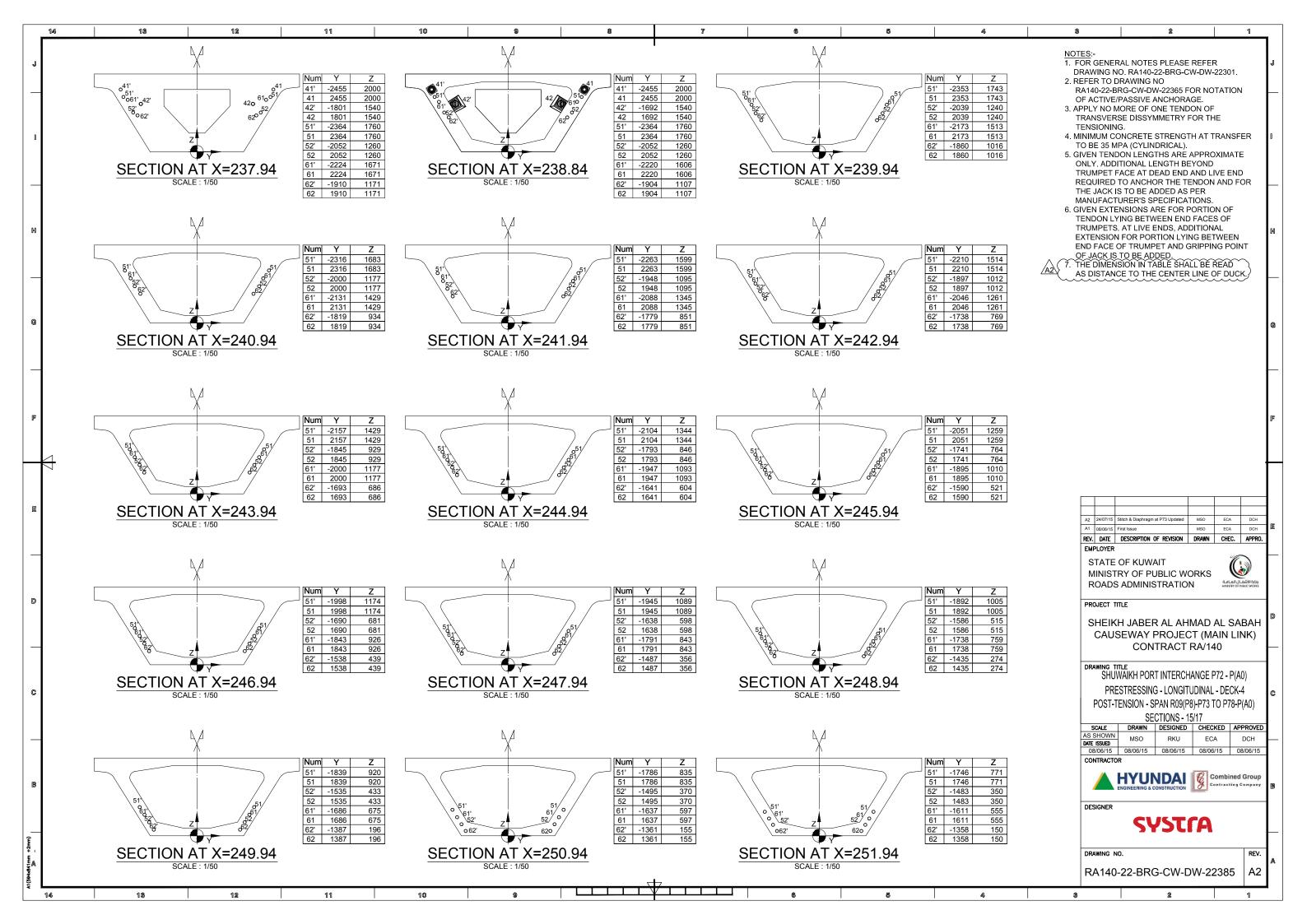


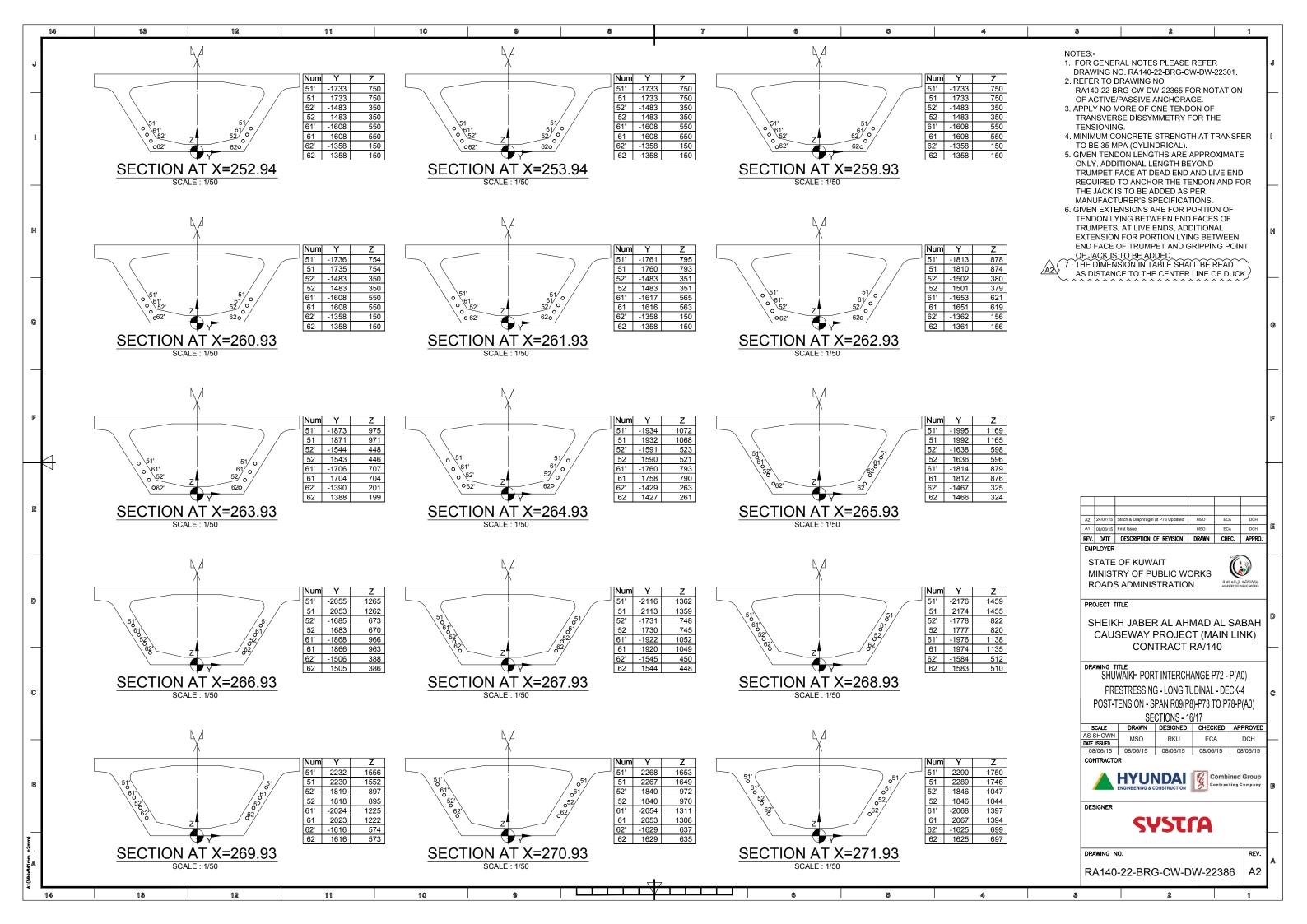


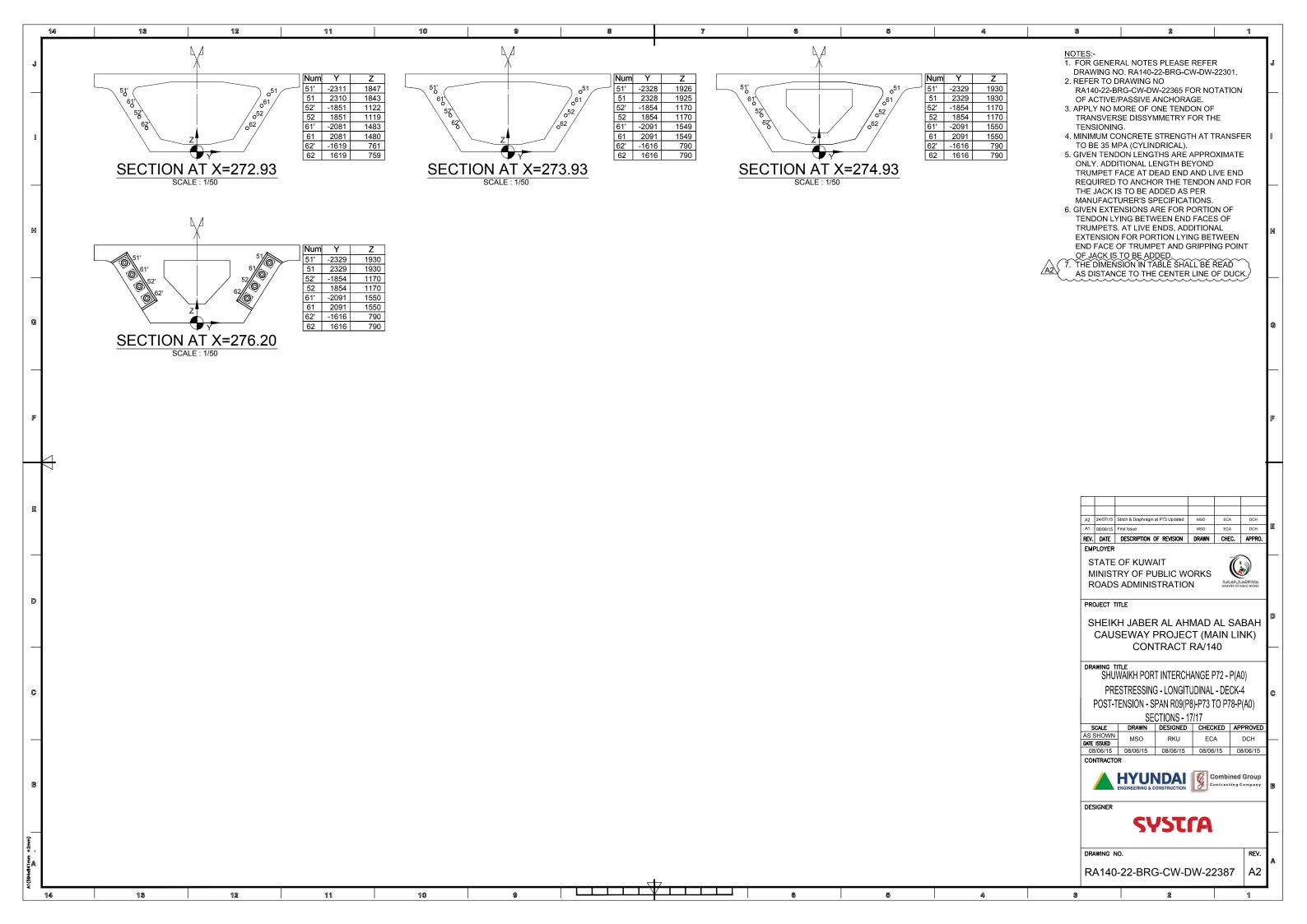


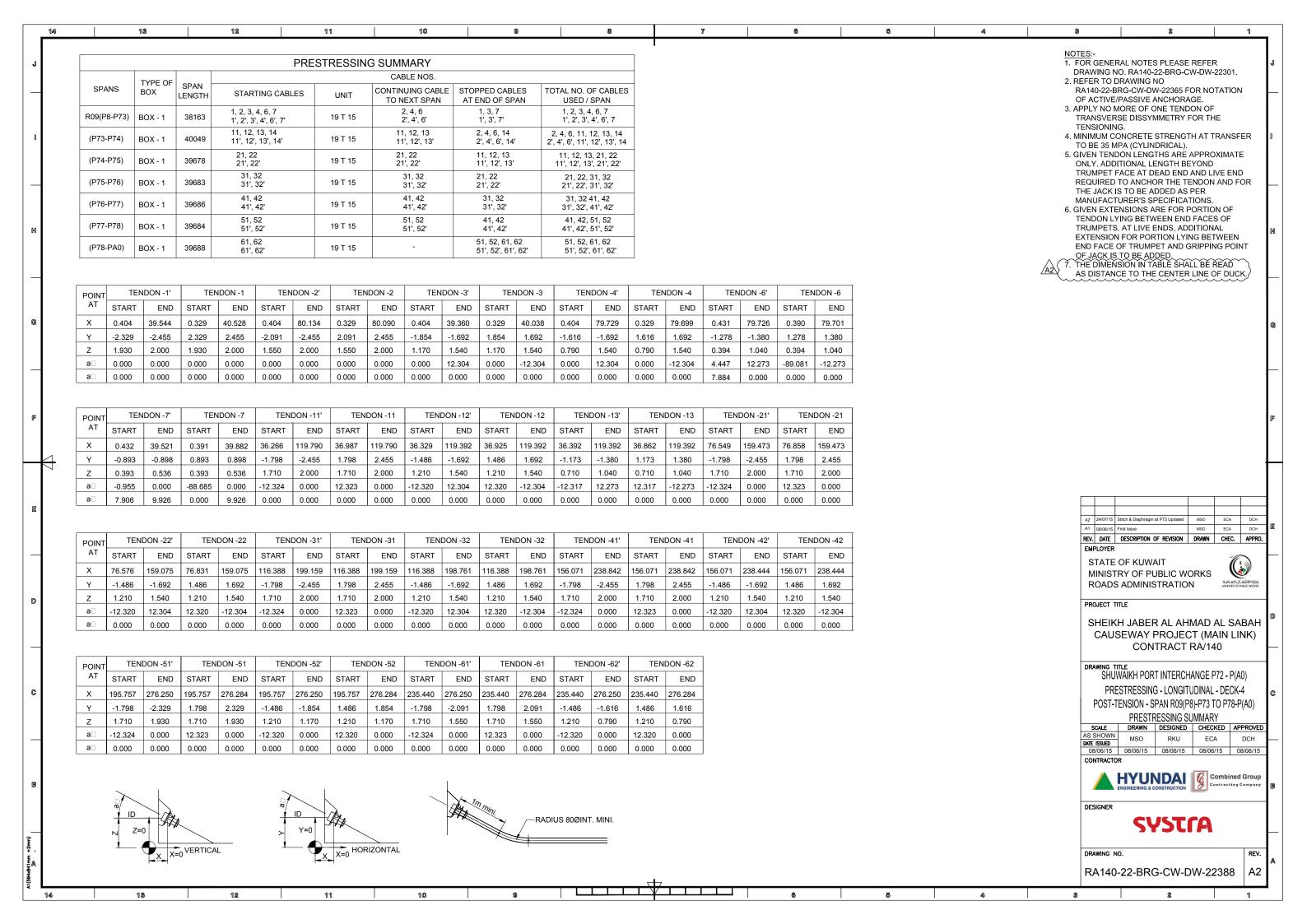




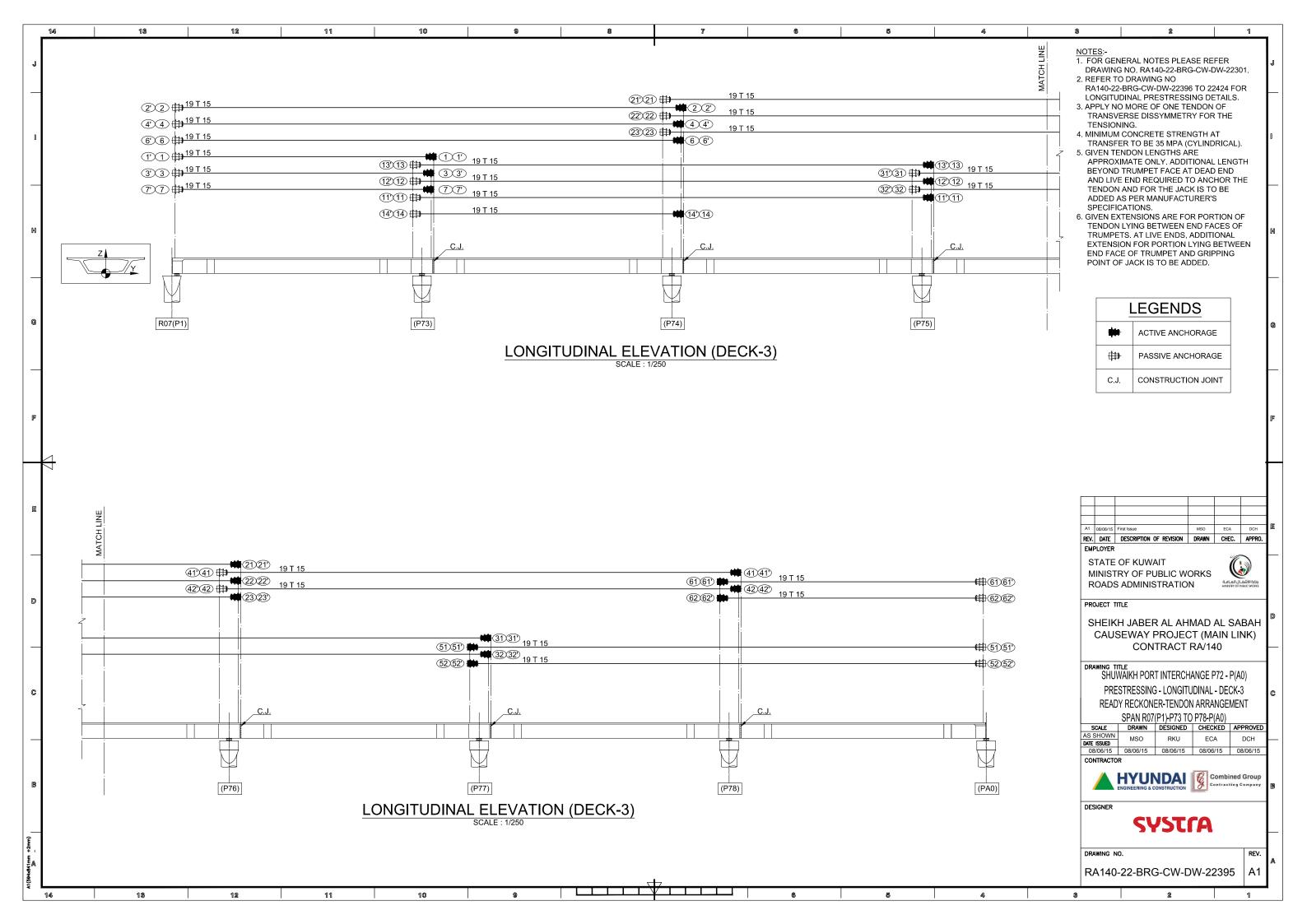


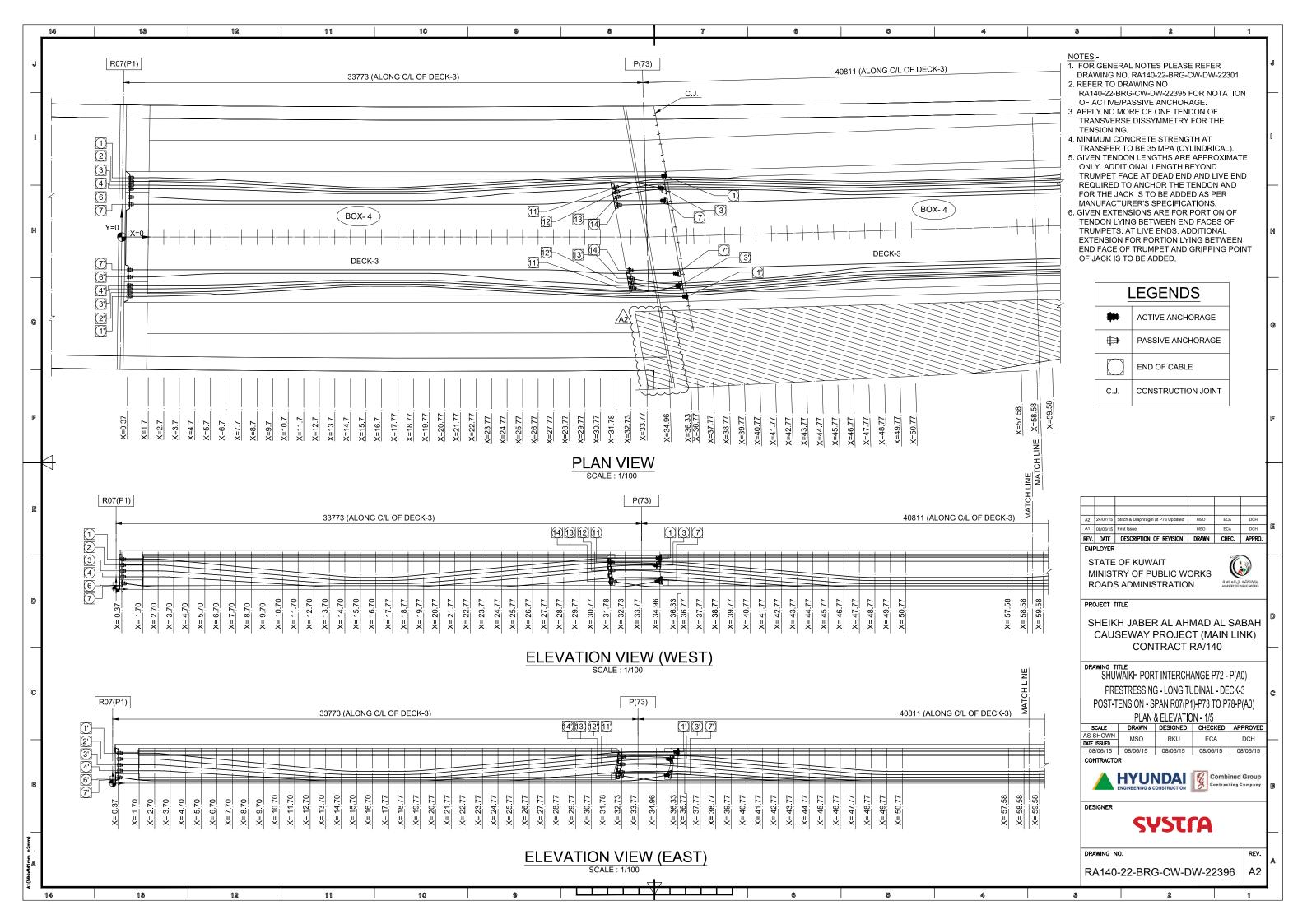


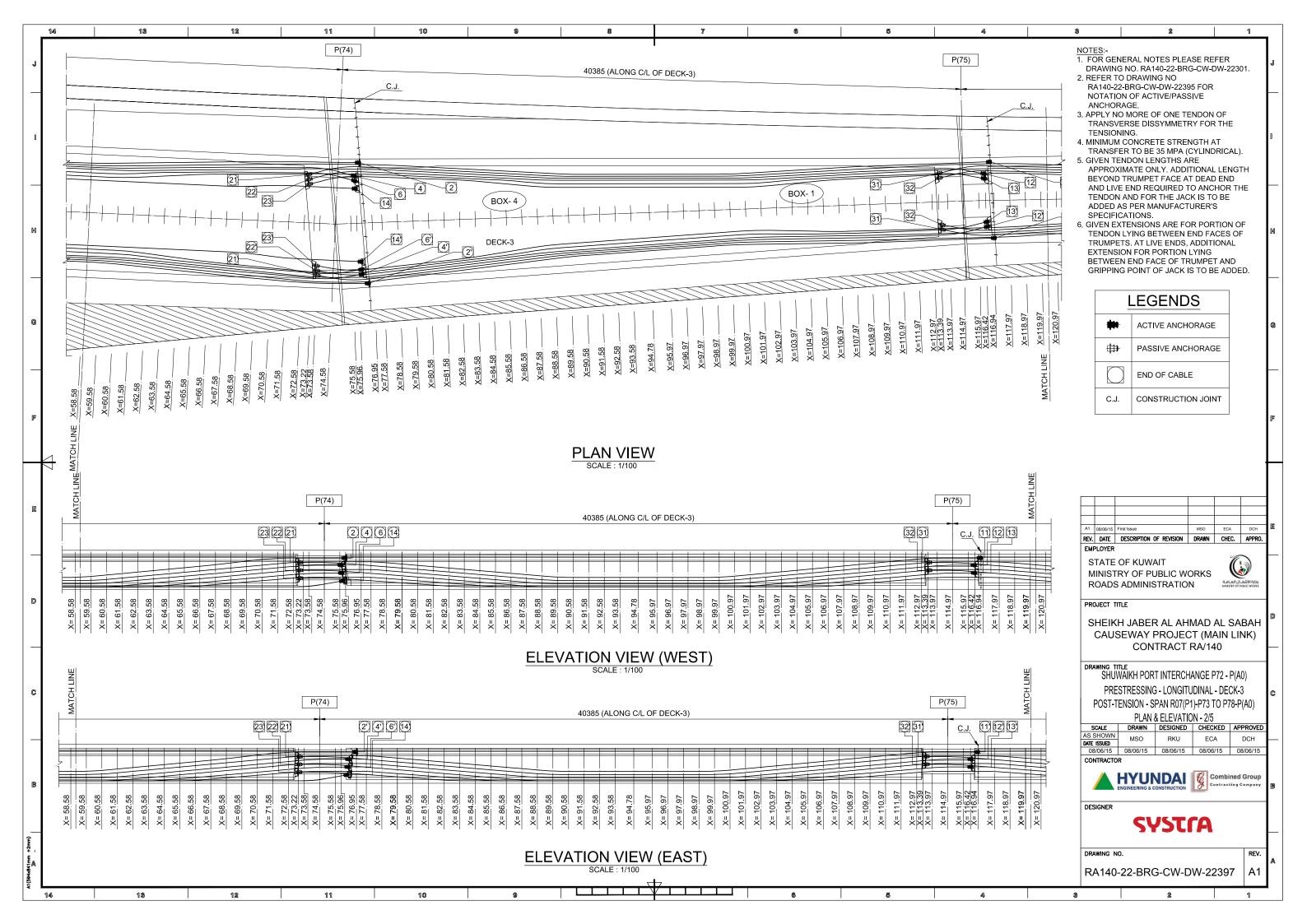


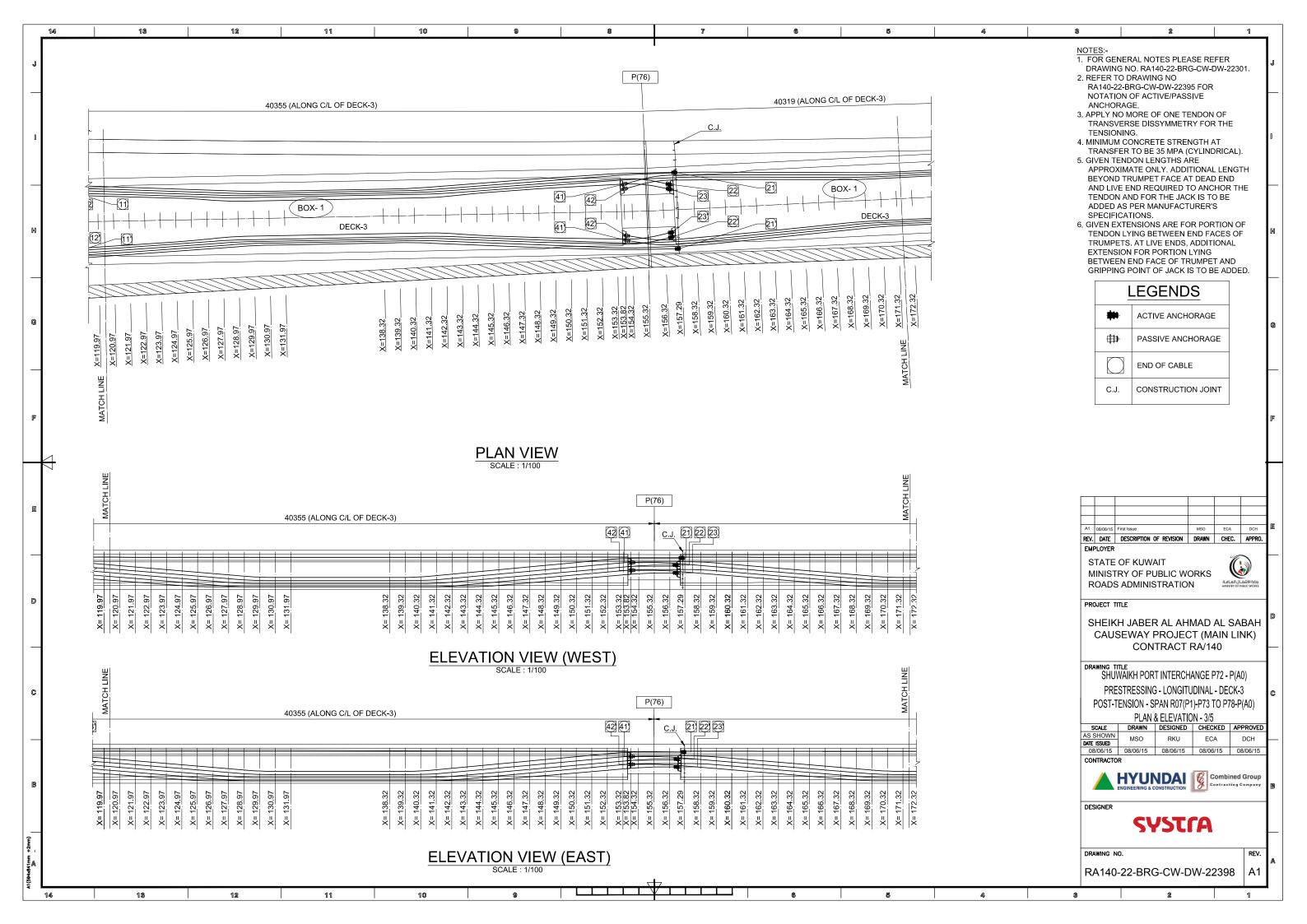


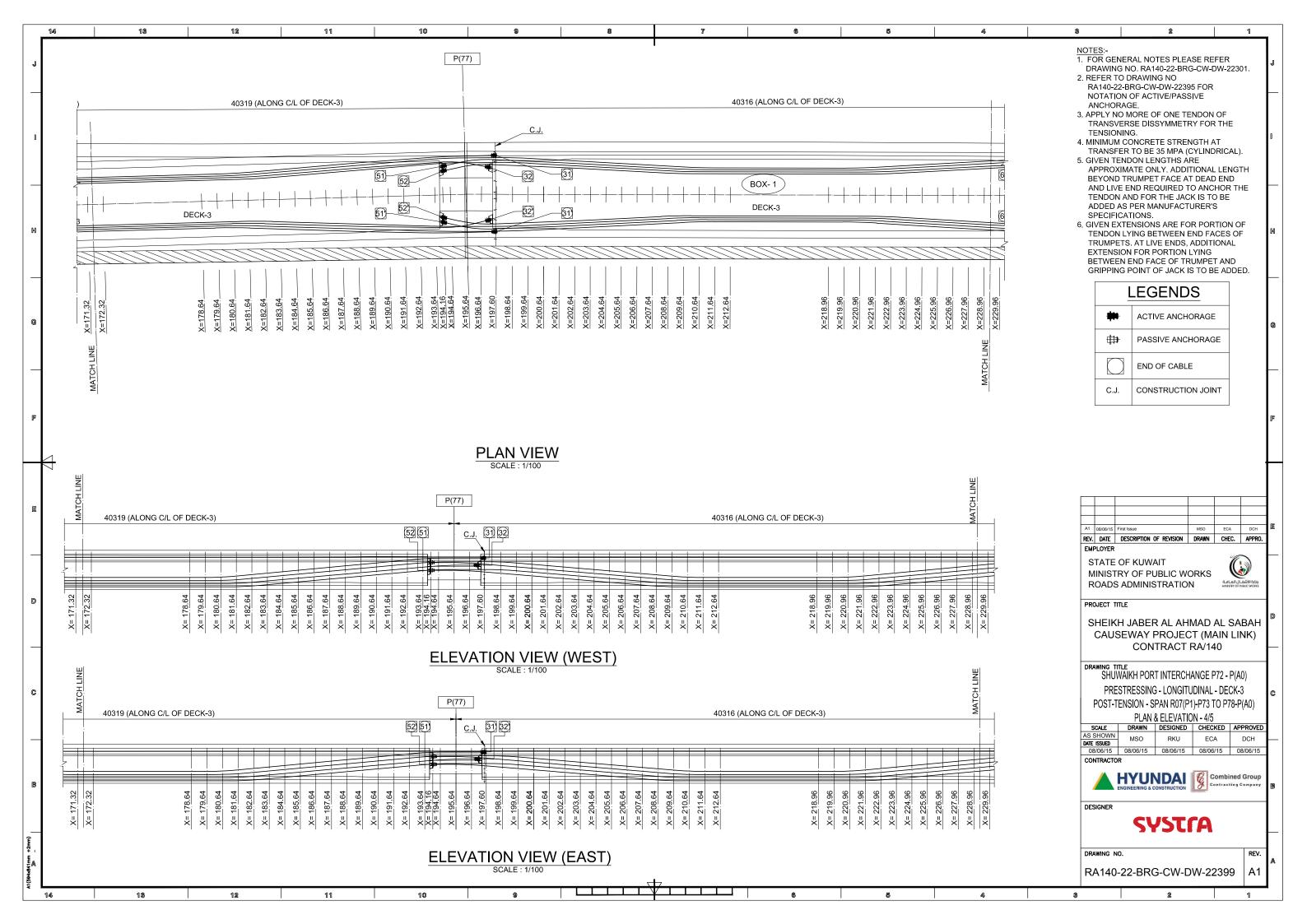
	13		12		11		10		9	8	7		6	5	4		3	2	
		D.	ECV 4 F	loras	nt Cirda	(D72 DA	0)				•						DRAWING NO.	AL NOTES PLEASI ). RA140-22-BRG-(	
Operations	S Tendon No.	Tensioning	Tendon unit	Anchorage	nt Girder  Anchorage co⊡er (at	Length (m)	Tension	Acti⊡e Ends	Elongation									RAWING NO G-CW-DW-22365 I F ACTIVE/PASSIV	
Ореганогіз	1	order	19T15	unit 19T15	□oth ends)  SEALING	38.765	(□N) 3958	P73	(m) 0.261								ANCHORAGE 3. APPLY NO MO	E. DRE OF ONE TENI	IDON C
	1'	2	19T15	19T15	SEALING	40.477	3958	P73	0.274								TENSIONING.	E DISSYMMETRY : NCRETE STRENG	
STAGE 1	3'	3	19T15 19T15	19T15 19T15	SEALING SEALING	38.635 39.924	3958 3958	P73	0.263 0.271								TRANSFER TO	O BE 35 MPA (CY ON LENGTHS ARE	/LINDR
	7	1	19T15	19T15	SEALING	38.858	3958	P73	0.261								APPROXIMAT	TE ONLY. ADDITION  JMPET FACE AT D	ONAL L
	7'		19T15	19T15	SEALING	39.482	3958	P73	0.264									ID REQUIRED TO D FOR THE JACK	
	2'	2	19T15 19T15	19T15 19T15	SEALING SEALING	78.914 80.473	3958 3958	P74 P74	0.512 0.524								SPECIFICATION		
STAGE 2	4	3	19T15	19T15	SEALING	78.636	3958	P74	0.515								TENDON LYIN	ISIONS ARE FOR NG BETWEEN ENI AT LIVE ENDS. AD	ID FAC
	6		19T15 19T15	19T15 19T15	SEALING SEALING	79.927 78.734	3958 3958	P74 P74	0.523 0.507								EXTENSION F	FOR PORTION LY ND FACE OF TRUI	/ING
	6'	1	19T15	19T15	SEALING	79.719	3958	P74	0.512									DINT OF JACK IS 1	
	11	2	19T15 19T15	19T15 19T15	SEALING SEALING	83.225 83.542	3958 3958	P75 P75	0.538 0.537										
STAGE 3	12	- 3	19T15	19T15	SEALING	82.854	3958	P75	0.542										
0171020	12' 13		19T15 19T15	19T15 19T15	SEALING SEALING	83.141 82.822	3958 3958	P75 P75	0.538 0.532										
	13'	1	19T15	19T15	SEALING	83.075	3958	P75	0.529										
	21 21'	2	19T15 19T15	19T15 19T15	SEALING SEALING	82.928 83.310	3958 3958	P76 P76	0.536 0.538										
STAGE 4	22	1	19T15	19T15	SEALING	82.570	3958	P76	0.541										
	22'	'	19T15	19T15	SEALING	82.892	3958	P76	0.541										
074.05.5	31 31'	2	19T15 19T15	19T15 19T15	SEALING SEALING	83.037 83.277	3958 3958	P77	0.539 0.537										
STAGE 5	32	- 1	19T15	19T15	SEALING	82.672	3958	P77	0.540										
	32' 41		19T15 19T15	19T15 19T15	SEALING SEALING	82.876 83.051	3958 3958	P77 P78	0.541 0.537										
STAGE 6	41'	2	19T15	19T15	SEALING	83.278	3958	P78	0.538										
	42 42'	1	19T15 19T15	19T15 19T15	SEALING SEALING	82.681 82.870	3958 3958	P78 P78	0.540 0.542										
	51	2	19T15	19T15	SEALING	80.796	3958	P77	0.529								A1 08/06/15 First Issue  REV. DATE DESCRI	IPTION OF REVISION DR	MSO RAWN (
	51' 52		19T15 19T15	19T15 19T15	SEALING SEALING	80.931 80.748	3958 3958	P77	0.529 0.530								STATE OF K	(UWAIT	
STAGE 7	52'	1	19T15	19T15	SEALING	80.869	3958	P77	0.530								MINISTRY O	OF PUBLIC WOR	RKS
	61 61'	4	19T15 19T15	19T15 19T15	SEALING SEALING	40.931 41.032	3958 3958	P78 P78	0.279 0.279								PROJECT TITLE		
	62	- 3	19T15	19T15	SEALING	38.088	3958	P78	0.256									ABER AL AHM	AD AL
	62'		19T15	19T15	SEALING	40.991	3958	P78	0.279									'AY PROJECT CONTRACT RA	
																	DRAWING TITLE SHUWAIKH	H PORT INTERCHAN	NGE P72
																		SSING - LONGITUDI	
																	PRI	ON - SPAN R09(P8)-F RESTRESSING SEQU	UENCE
																	AS SHOWN MS	AWN DESIGNED OF RKU	ECA
																	08/06/15 08/06 CONTRACTOR	6/15 08/06/15	
																		UNDAI CRING & CONSTRUCTION	Cont
																	DESIGNER	SYSTA	A
																	DRAWING NO.		
																	RA140-22-I	BRG-CW-DW	V-223
	13		12		11		10		9		<del>V                                    </del>	I I	6	5	a.	T	<u> </u>	2	$\overline{}$

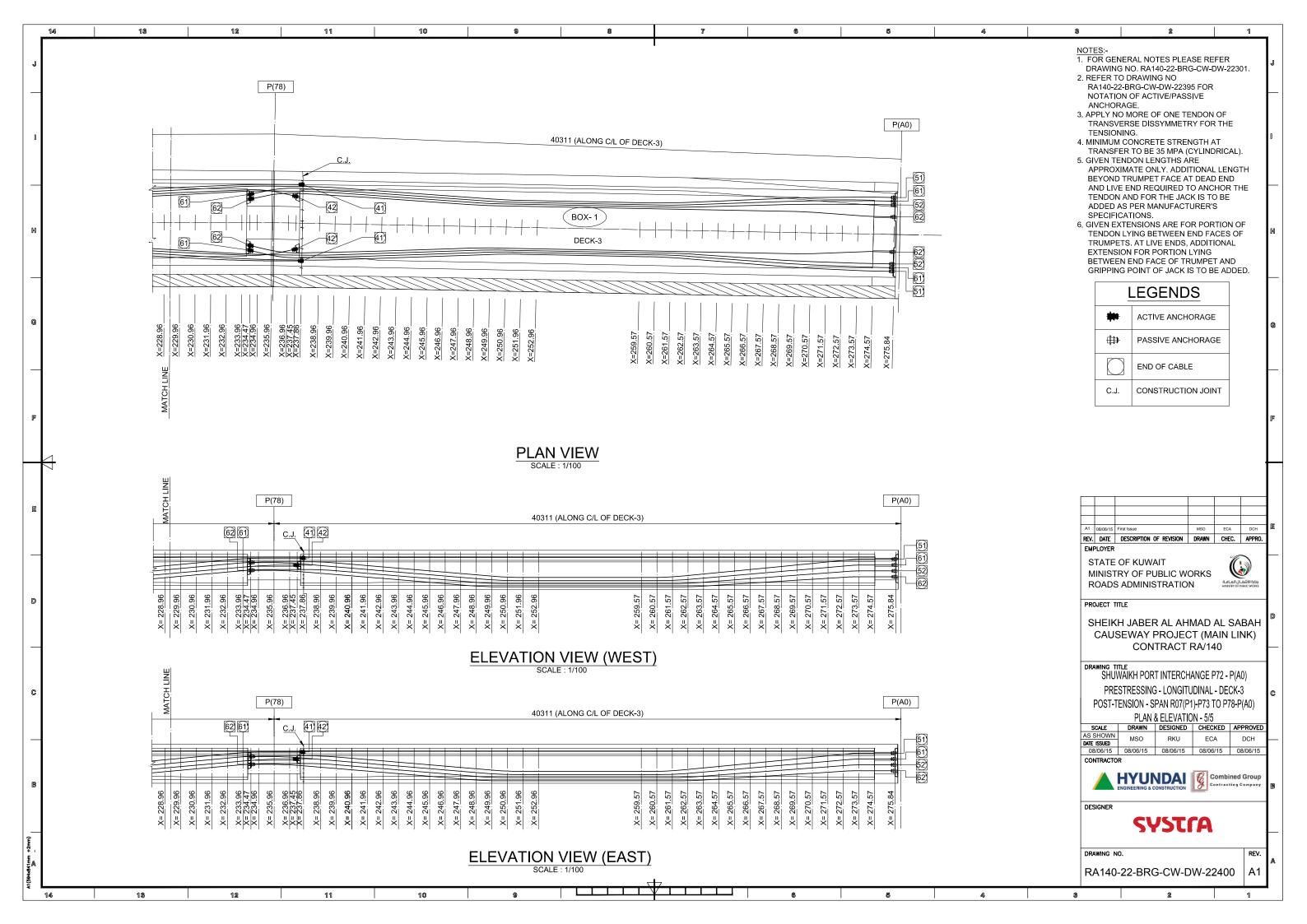


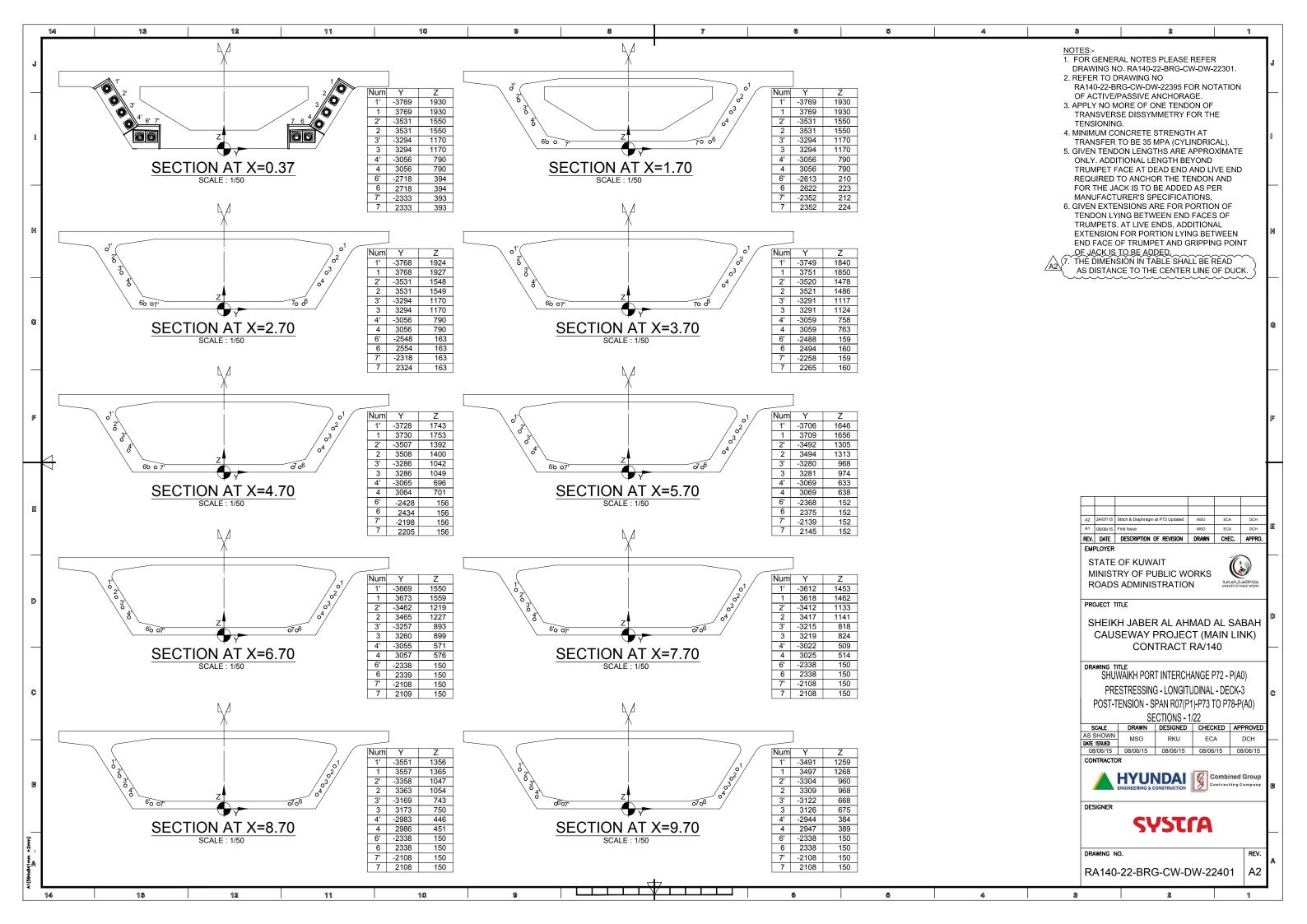


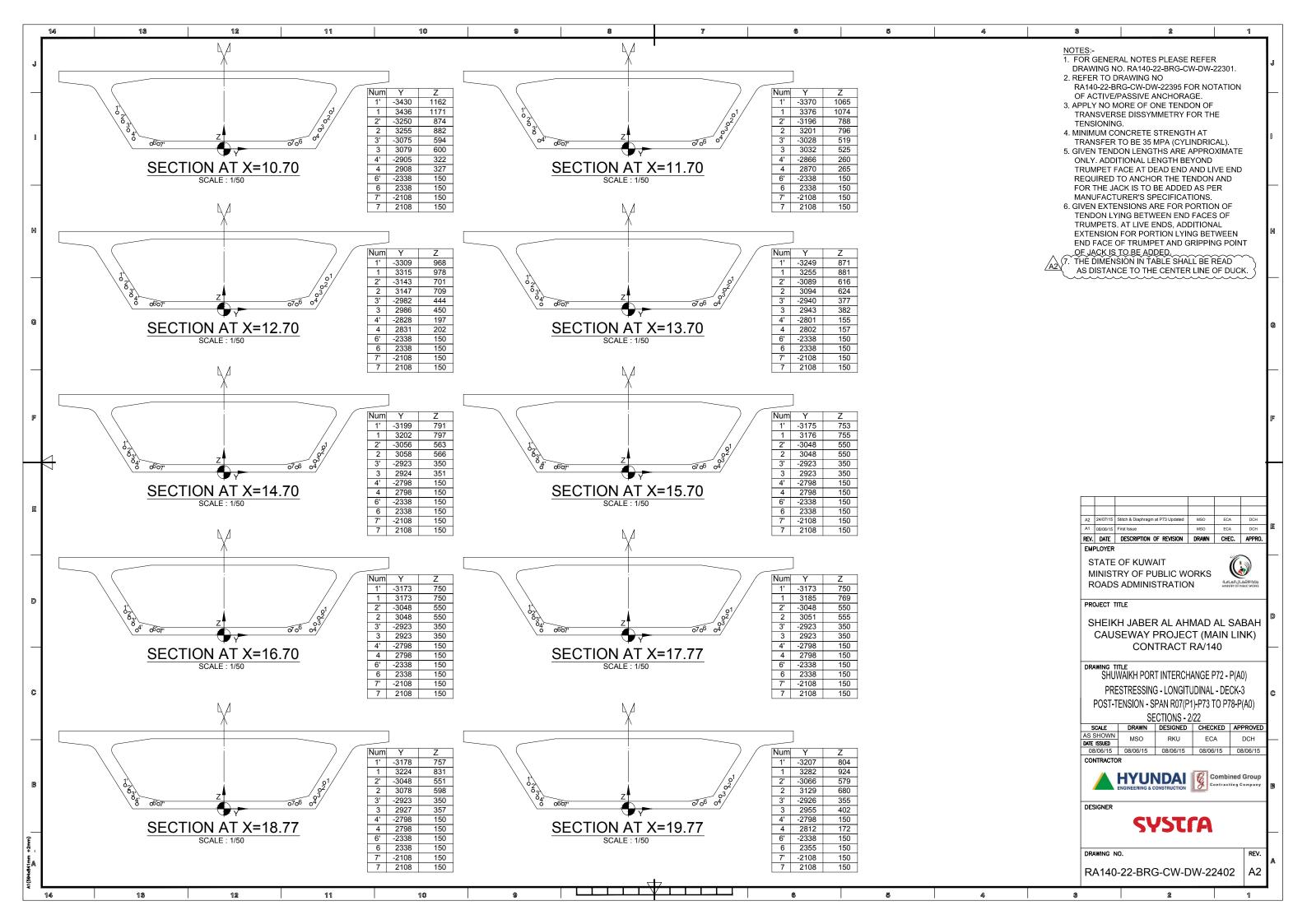


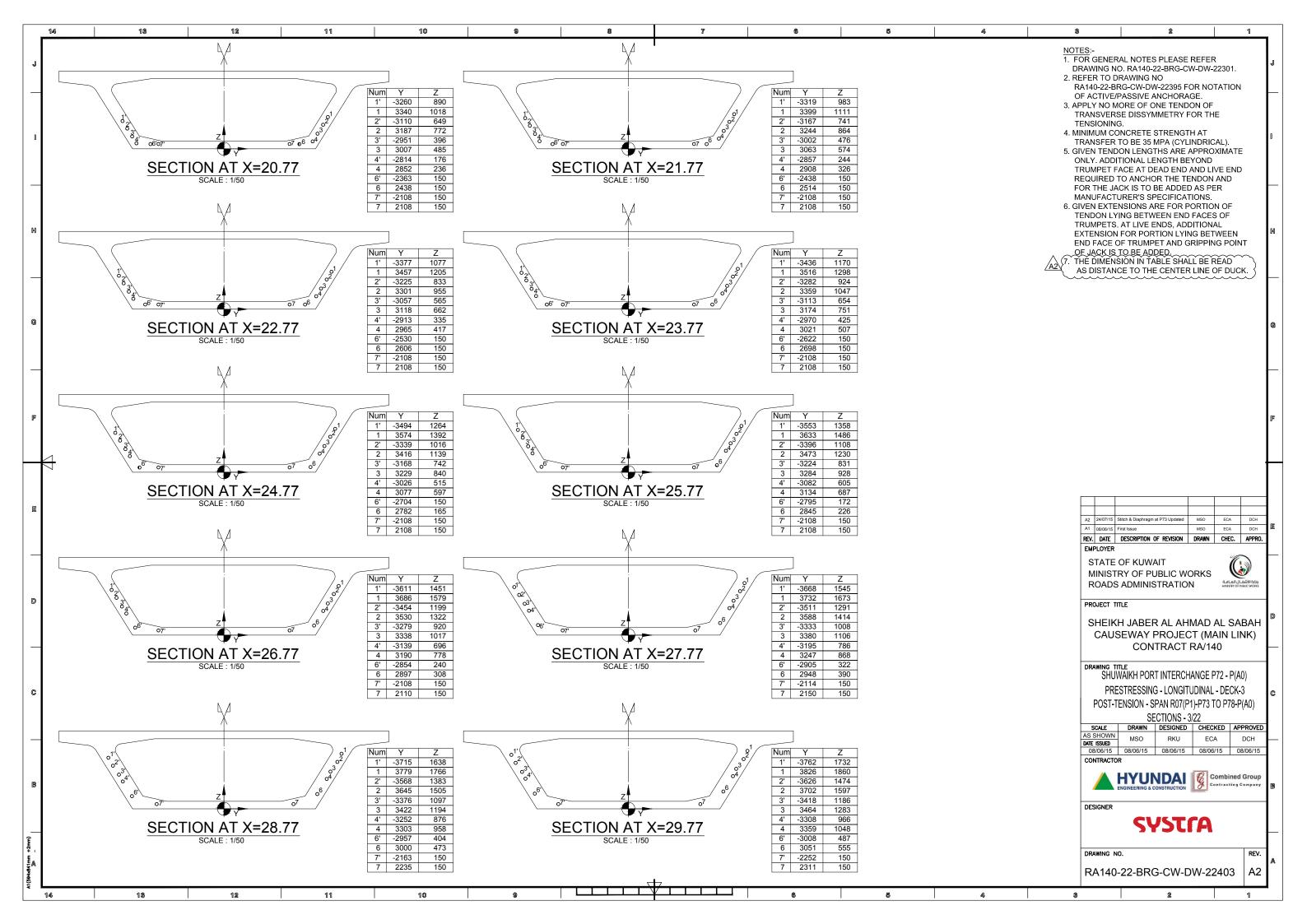


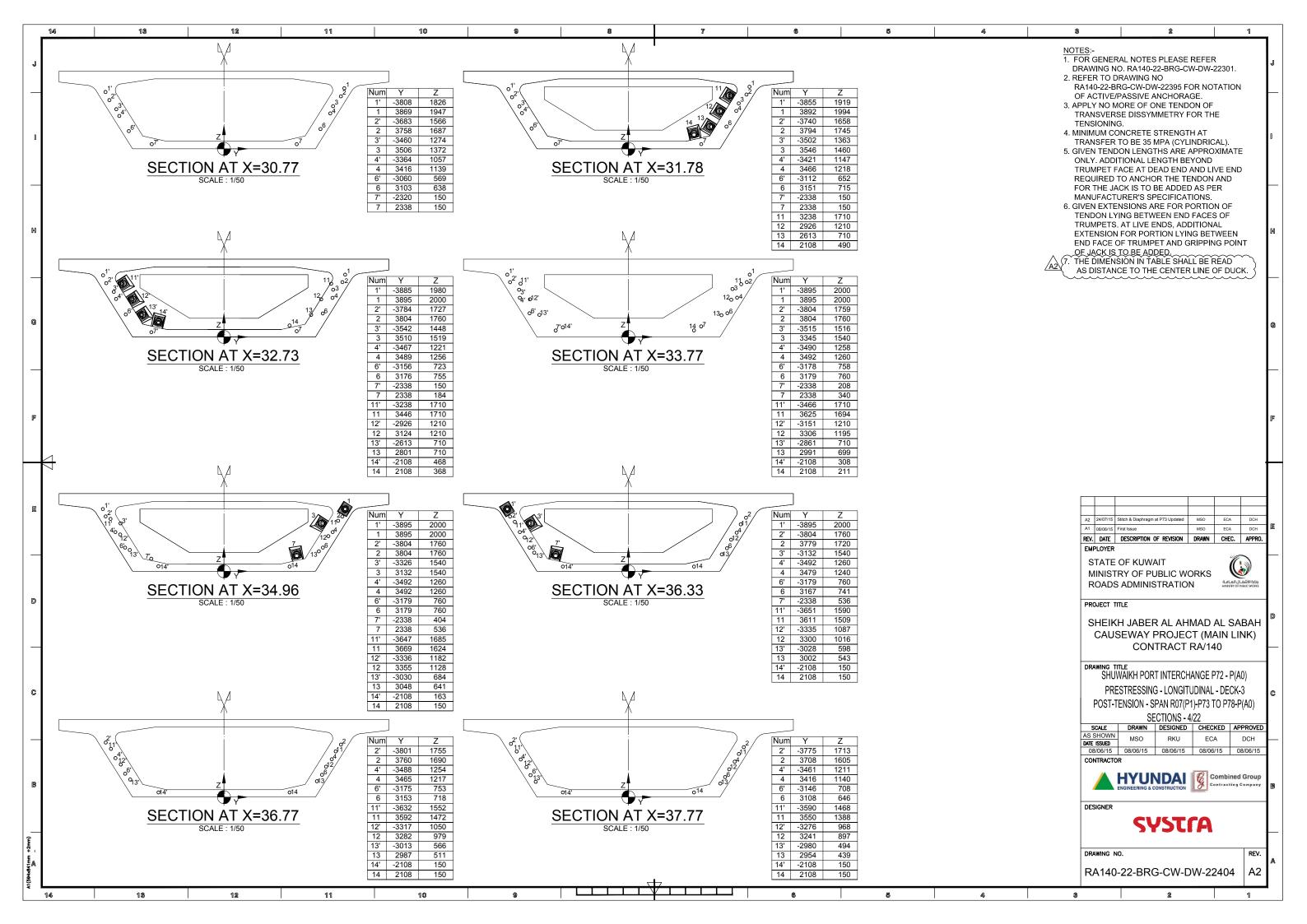


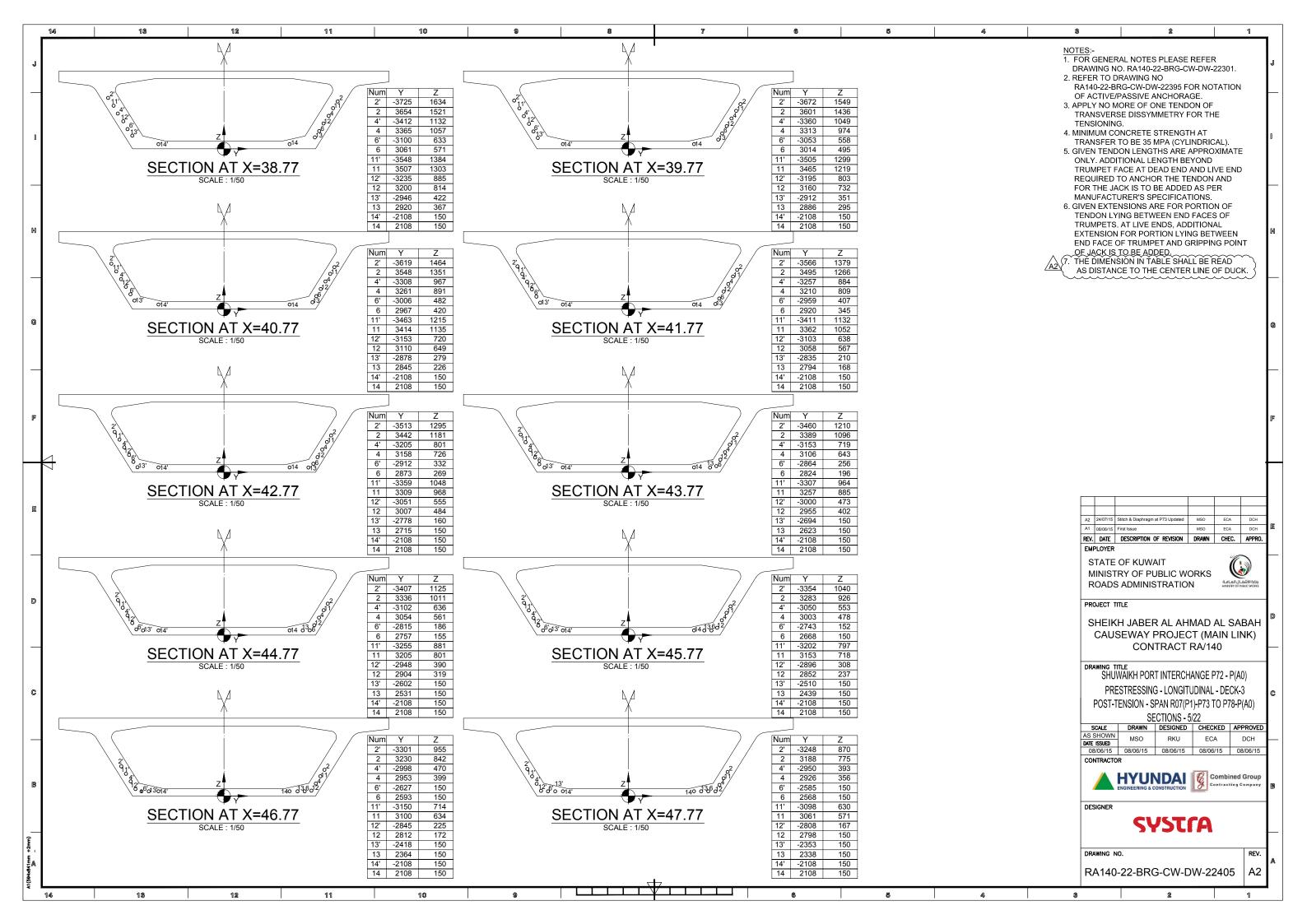


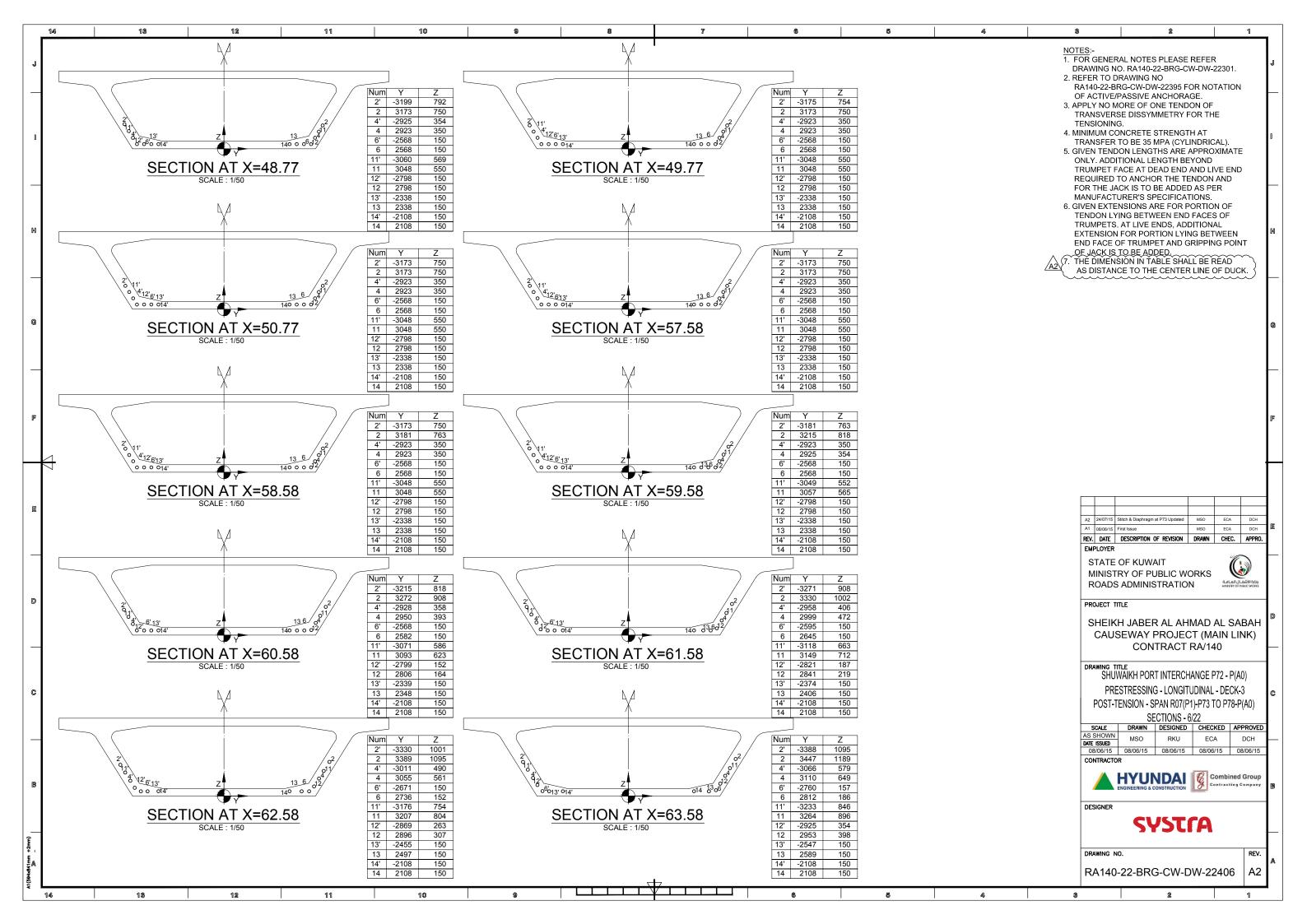


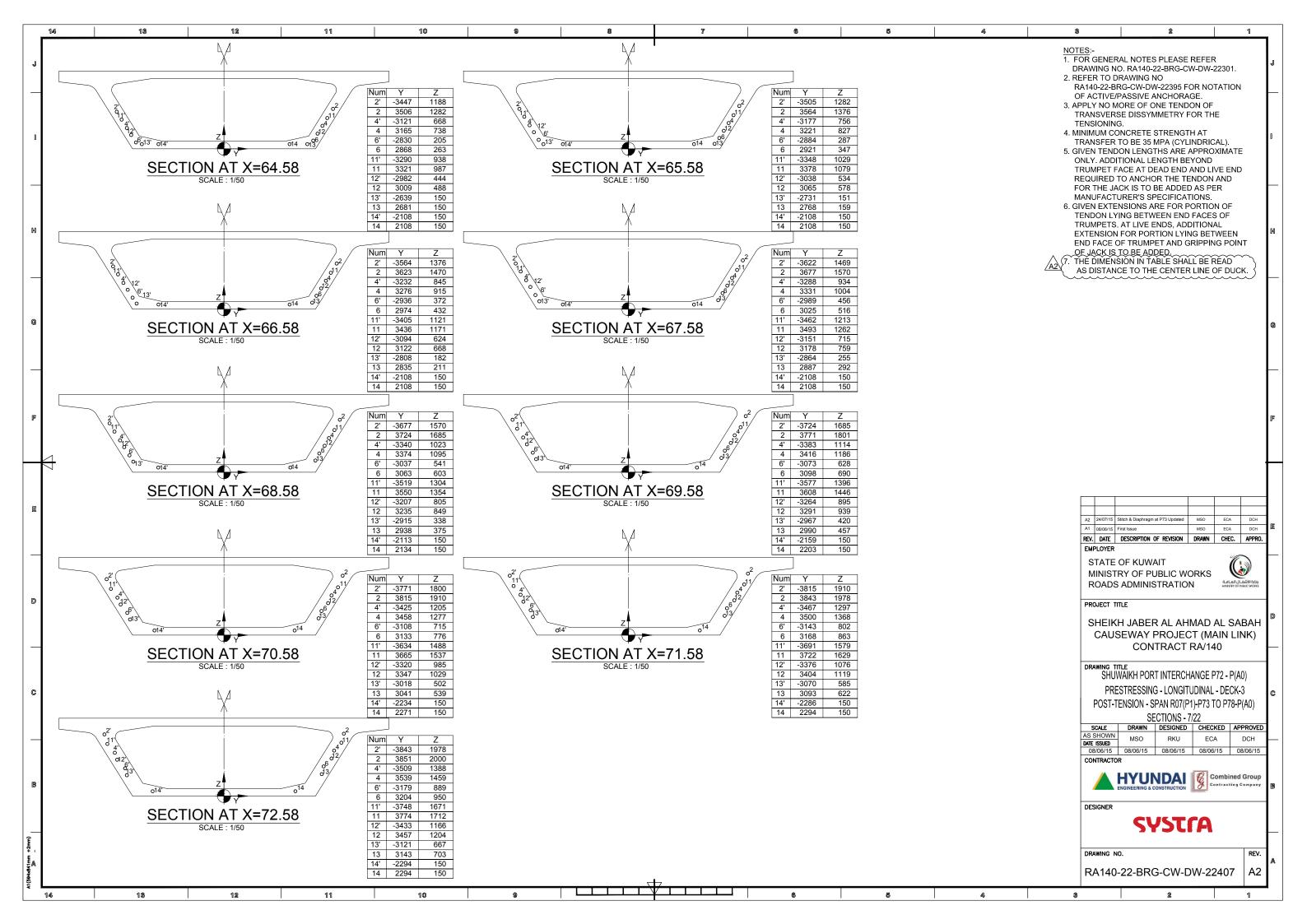


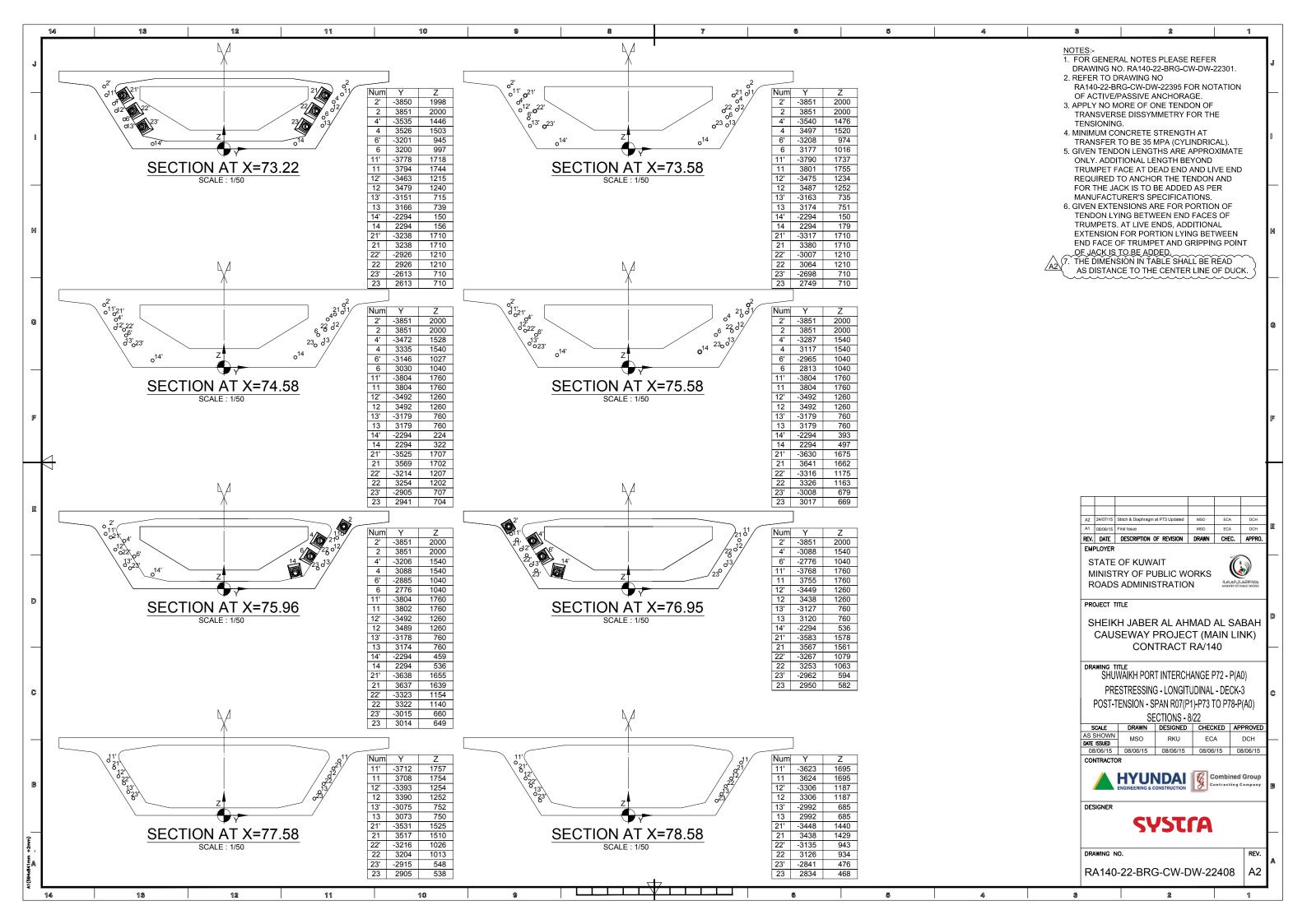


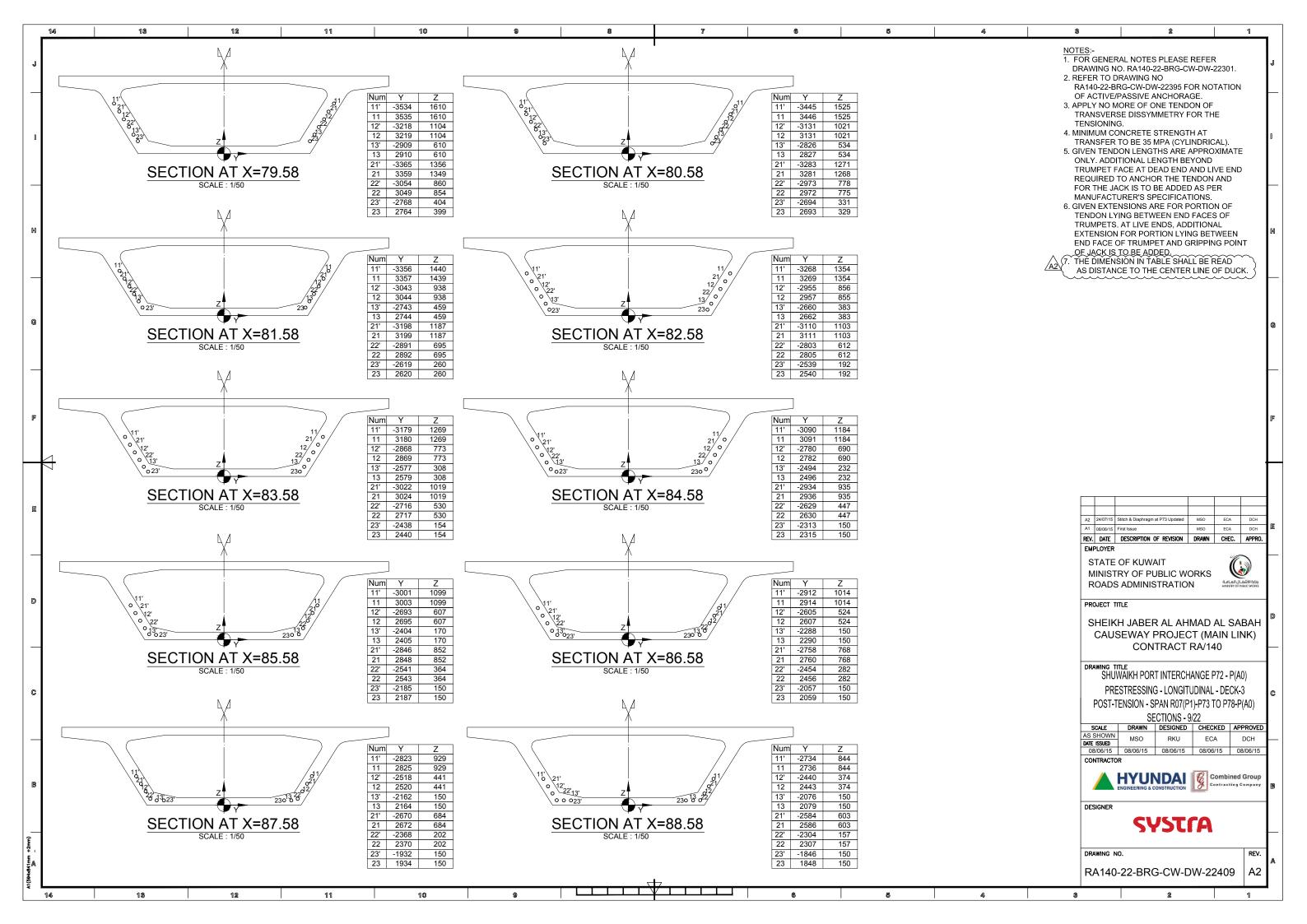


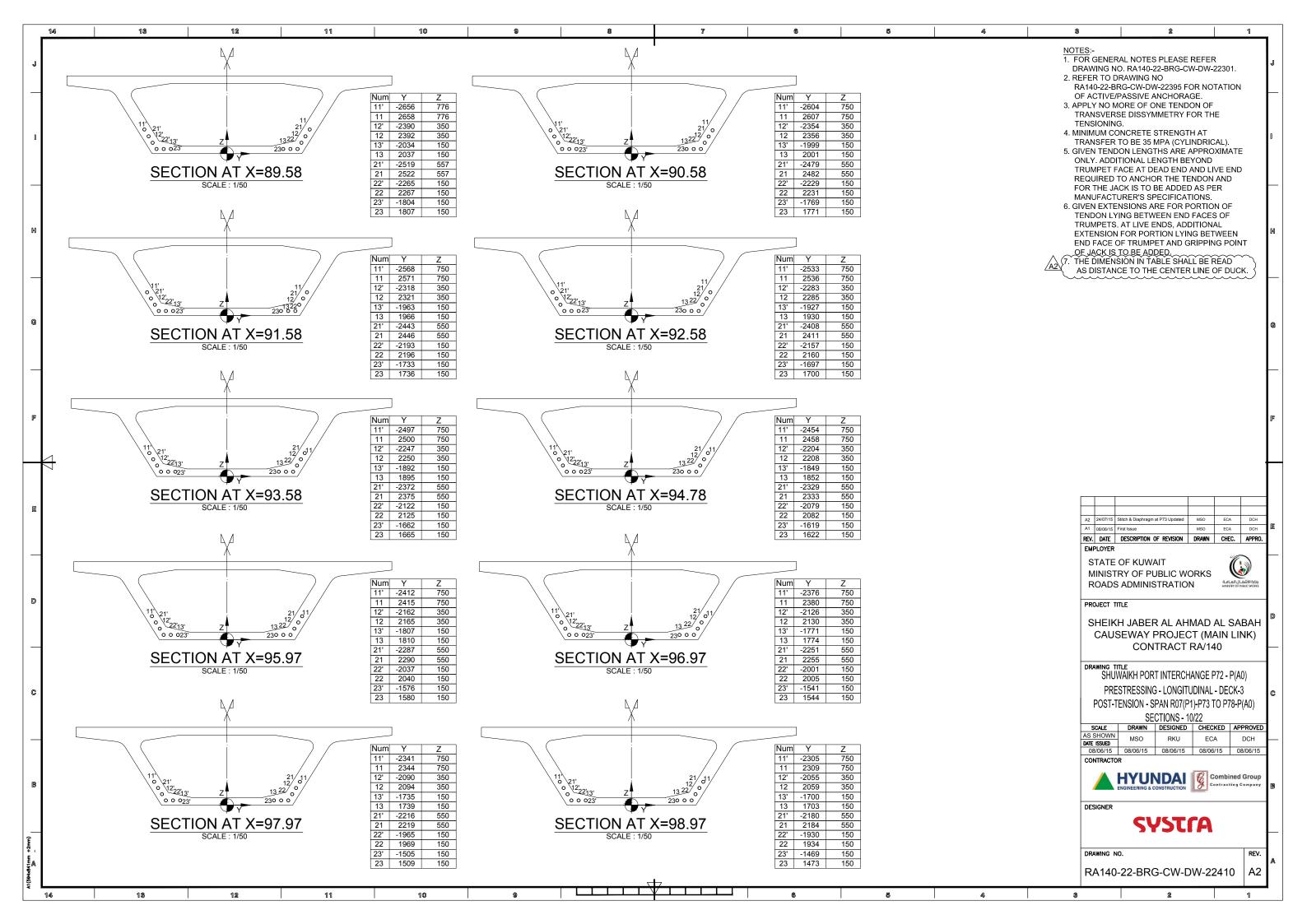


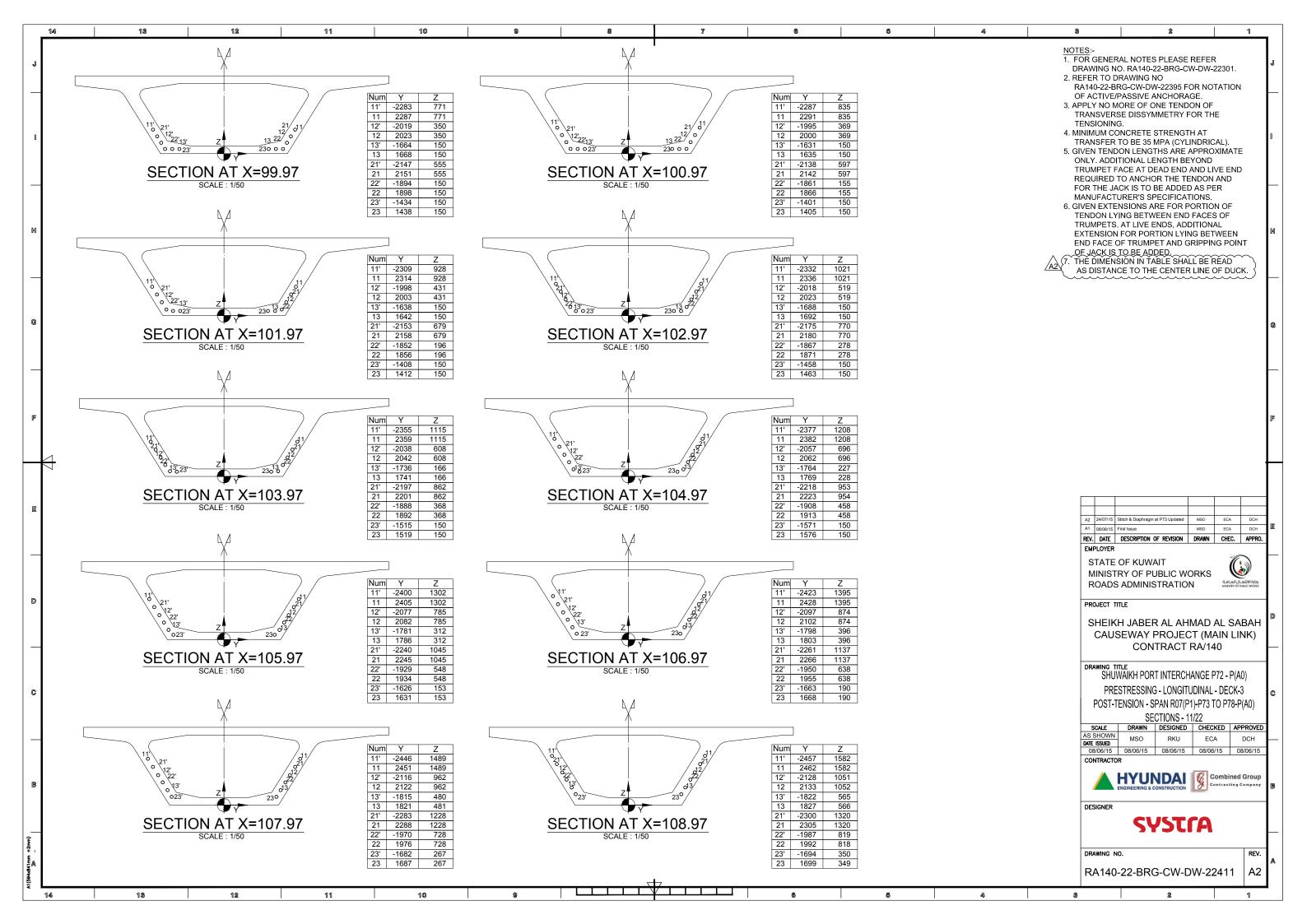


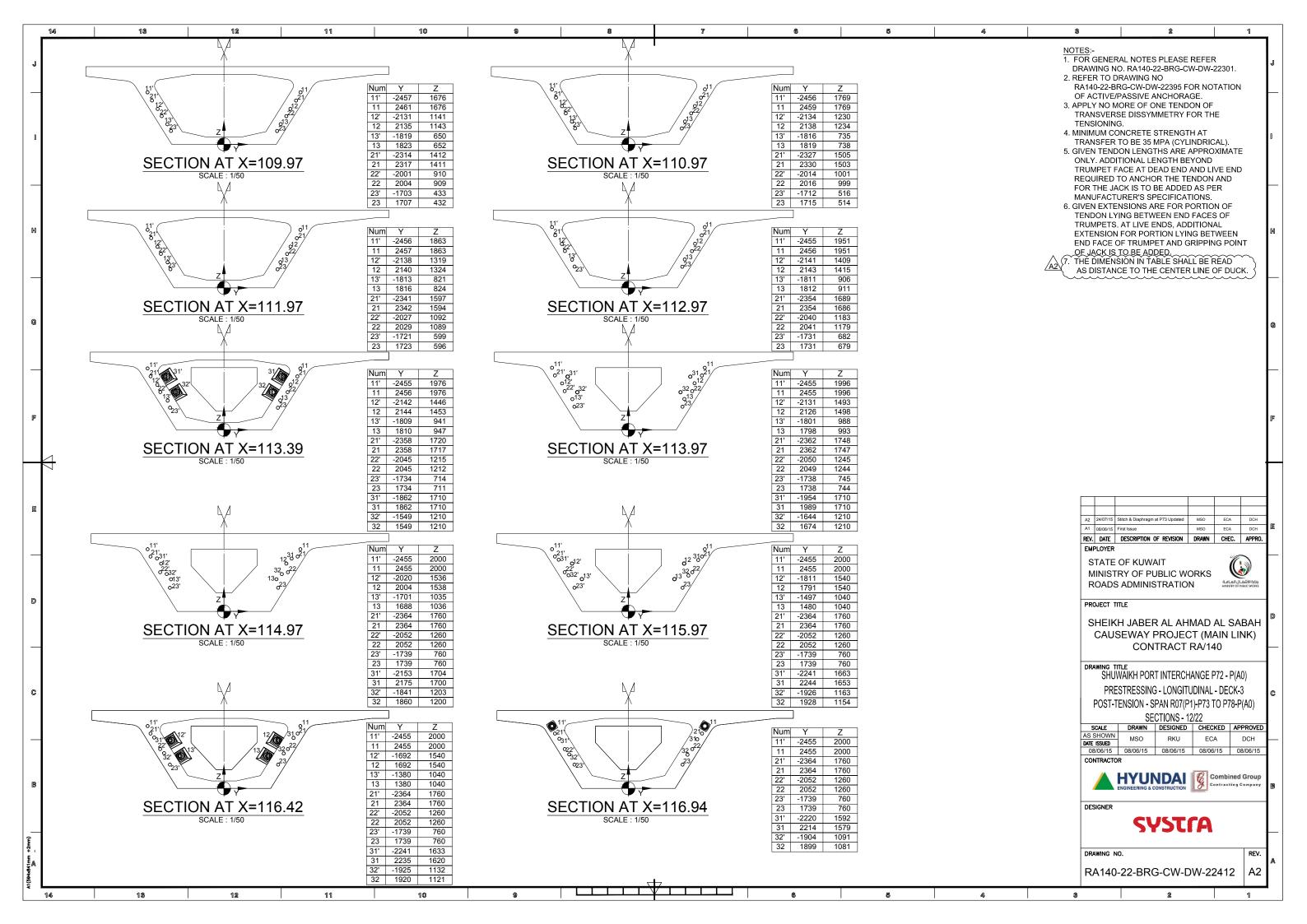


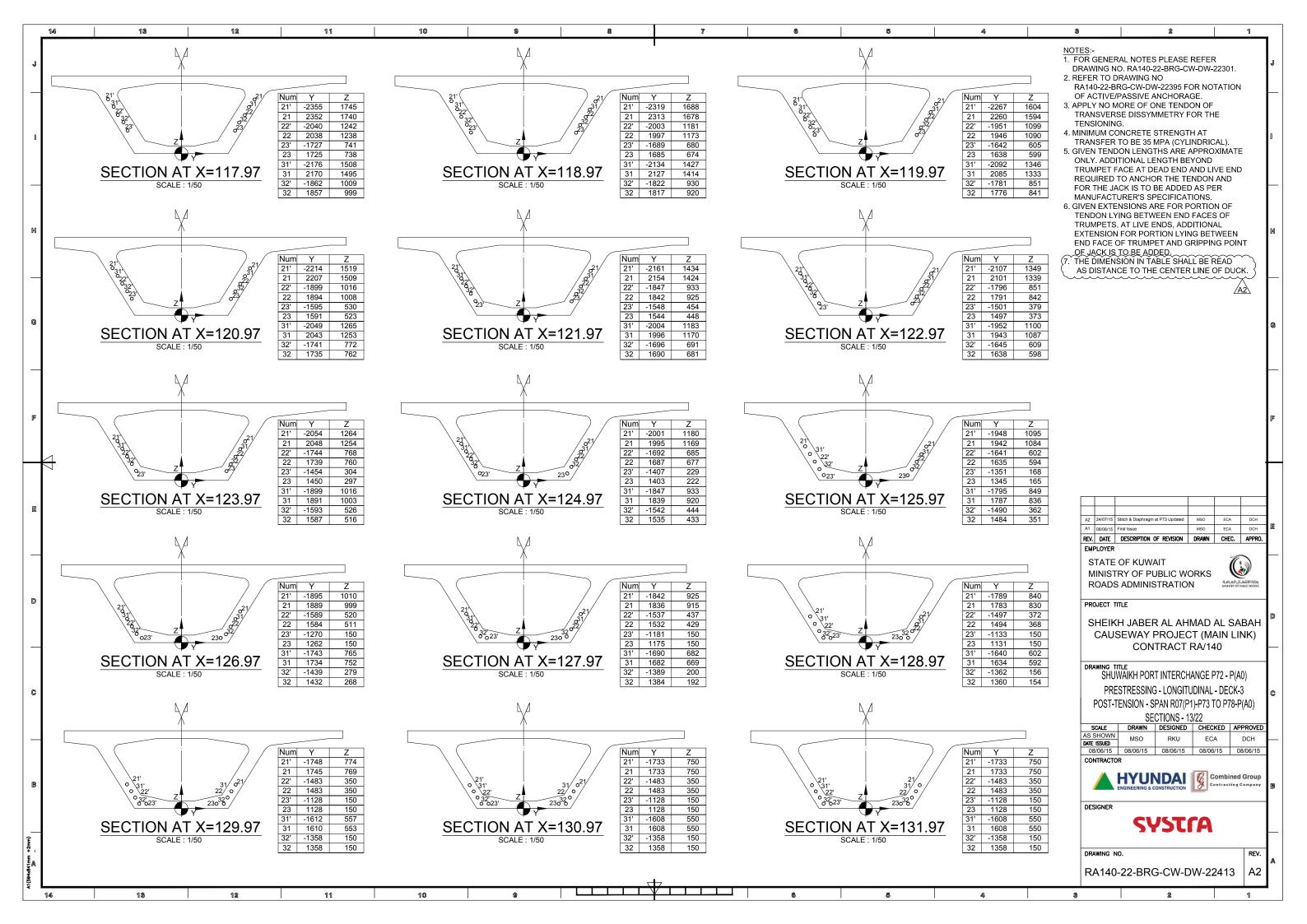


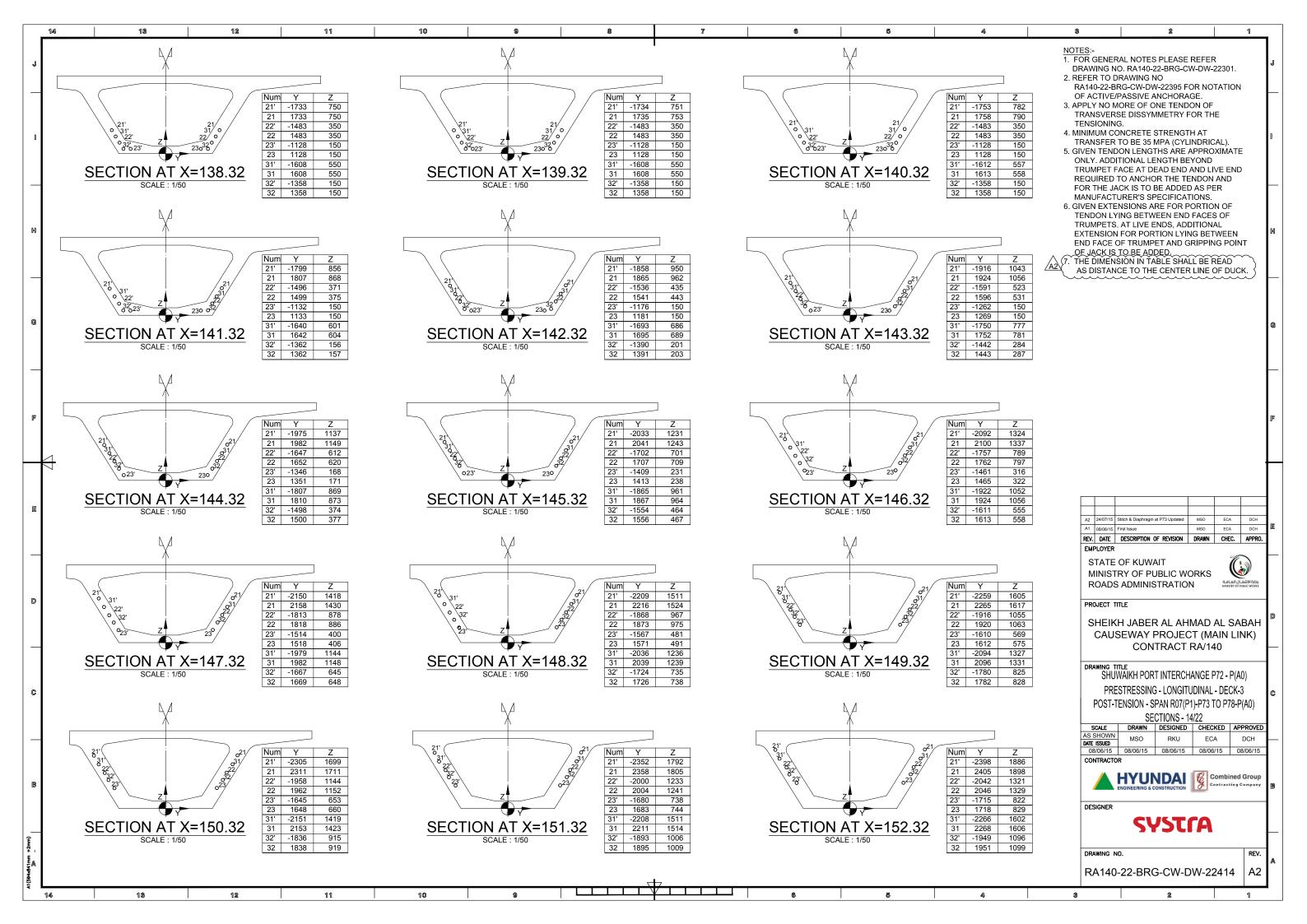


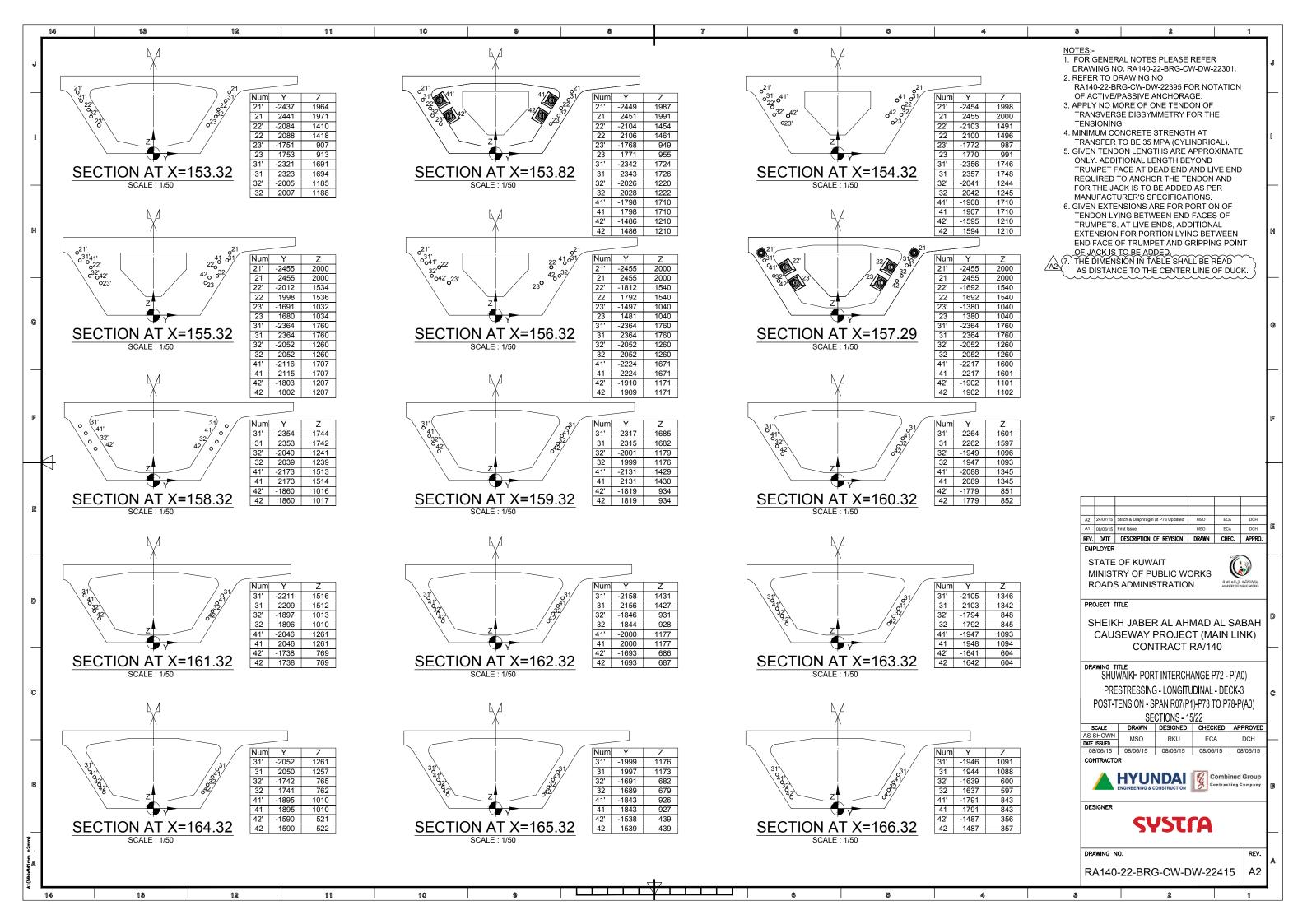


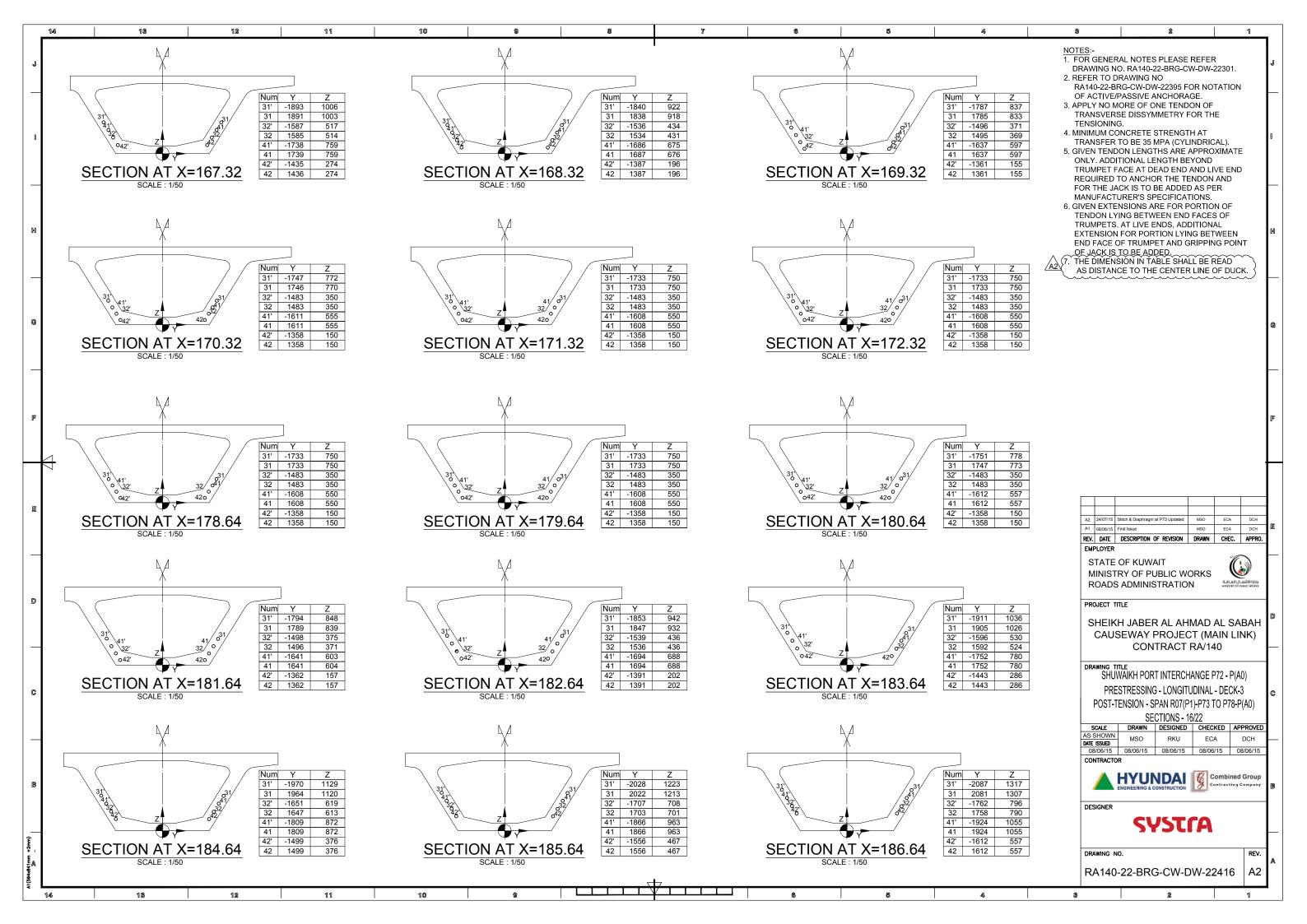


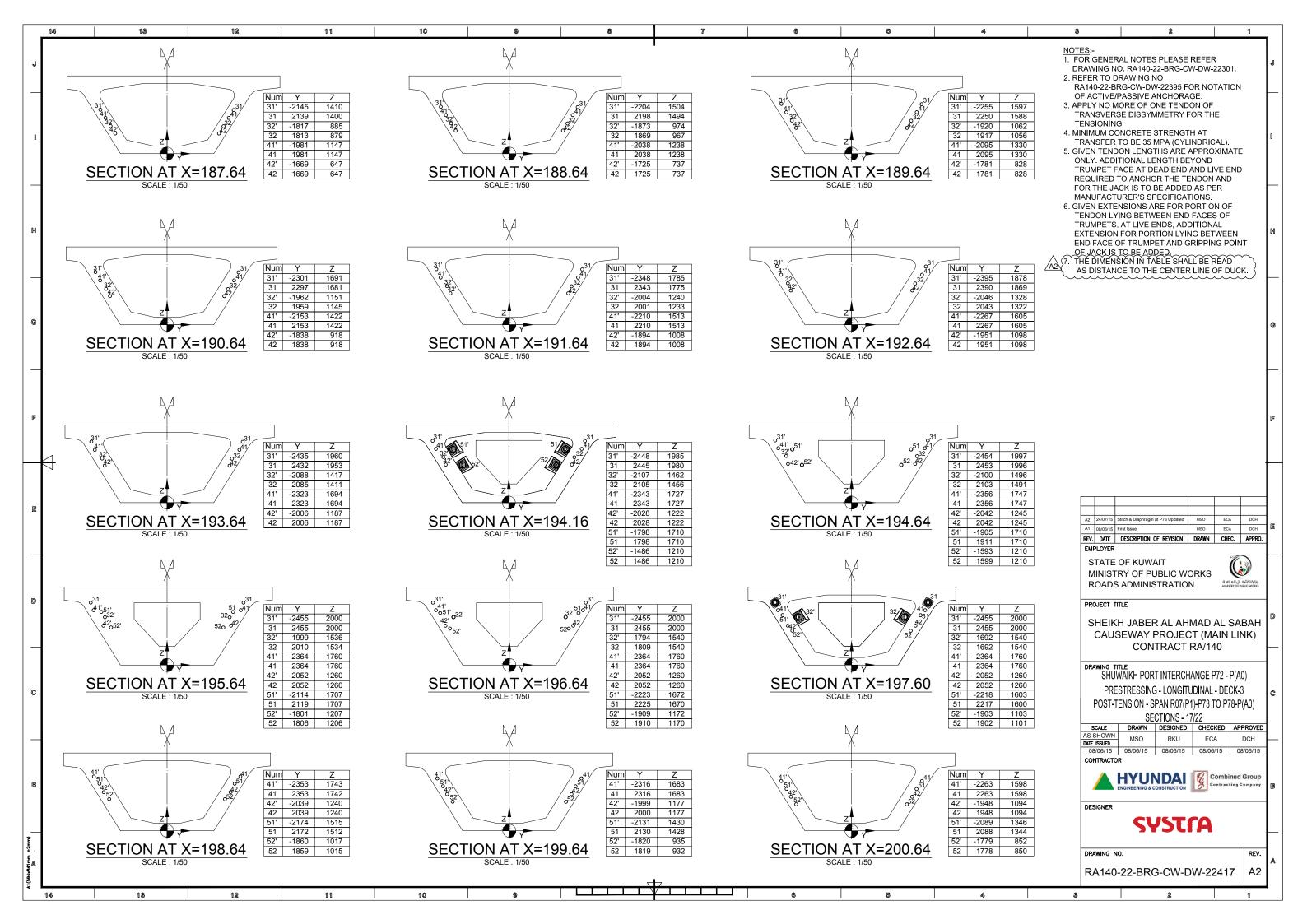


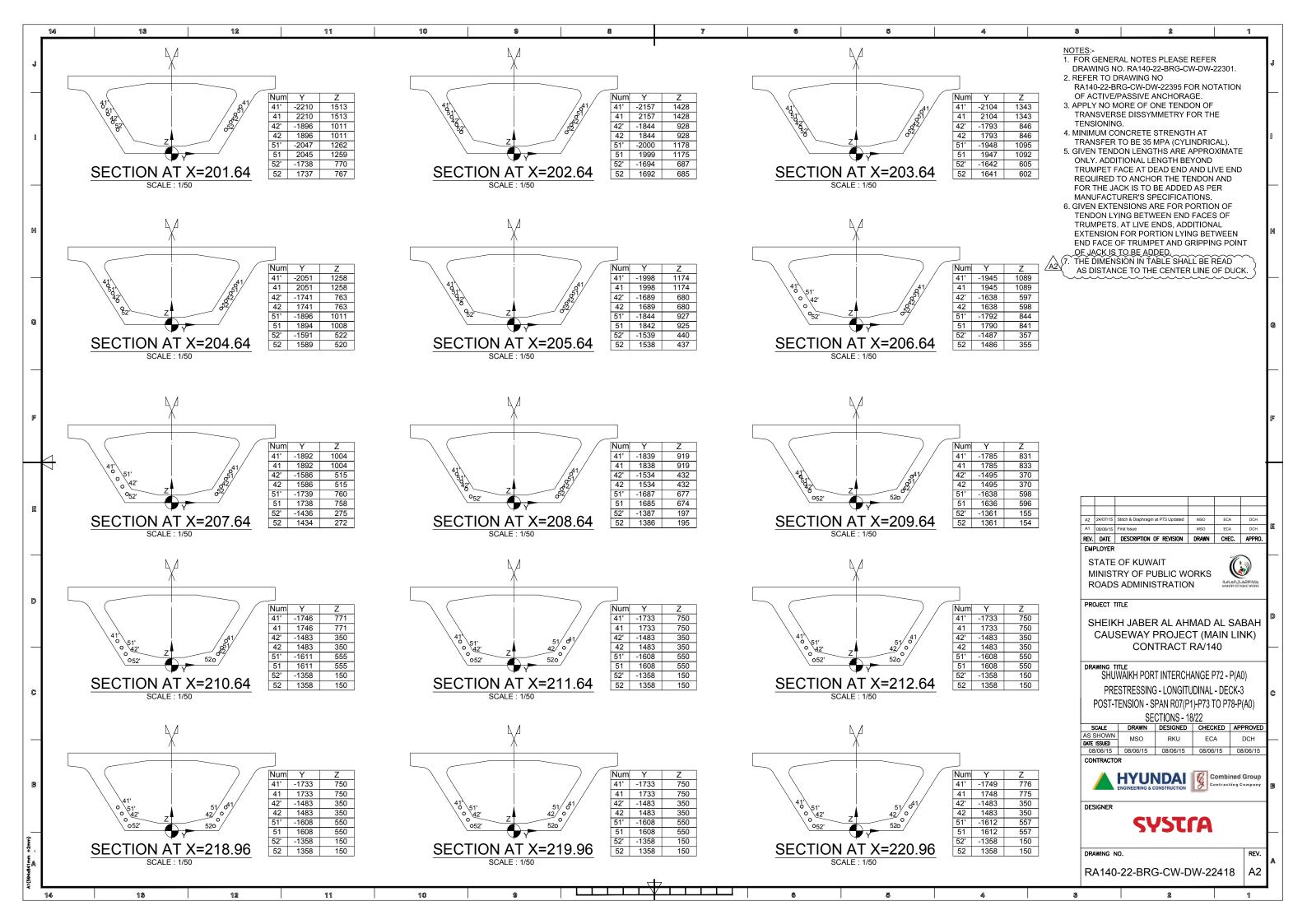


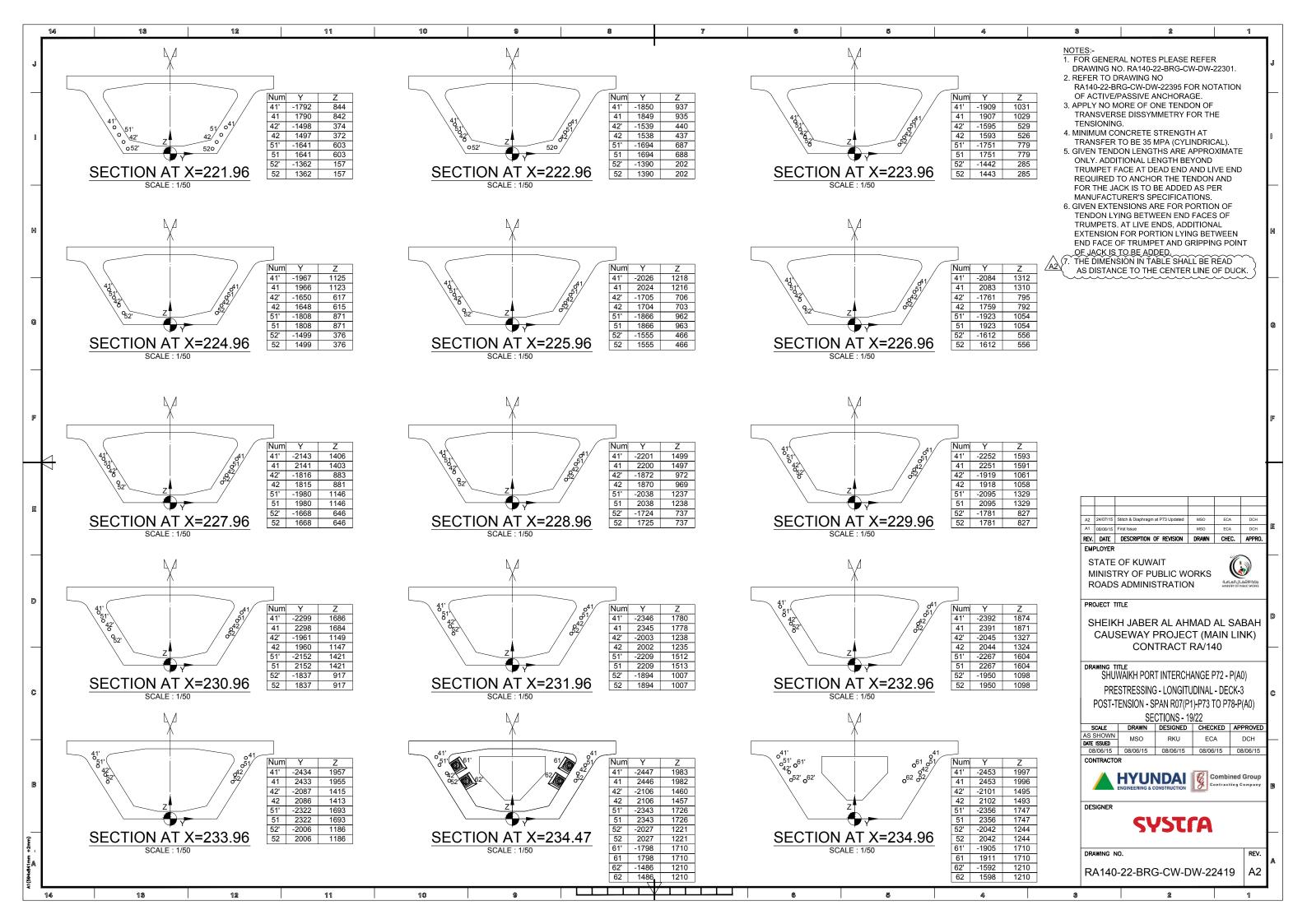


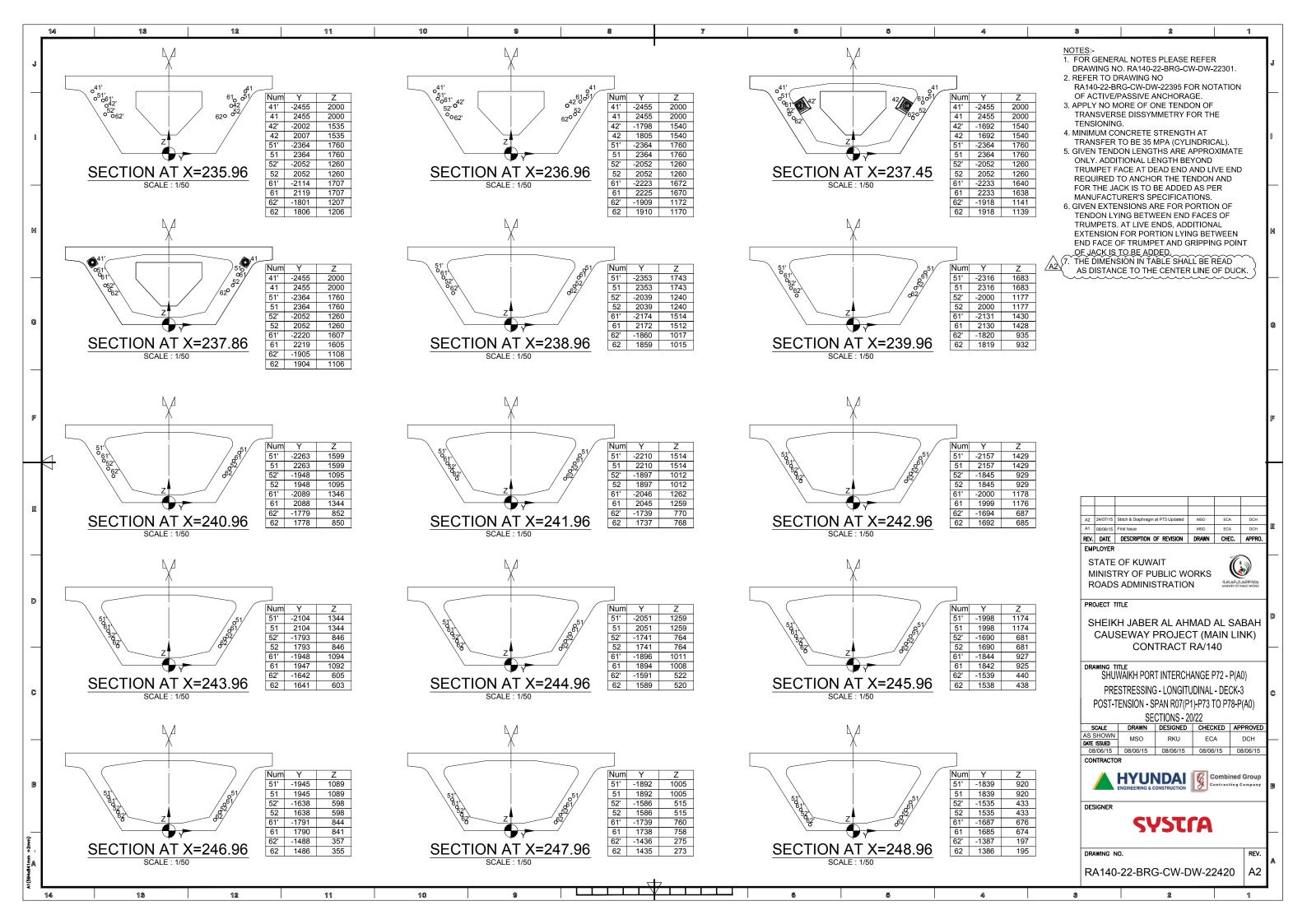


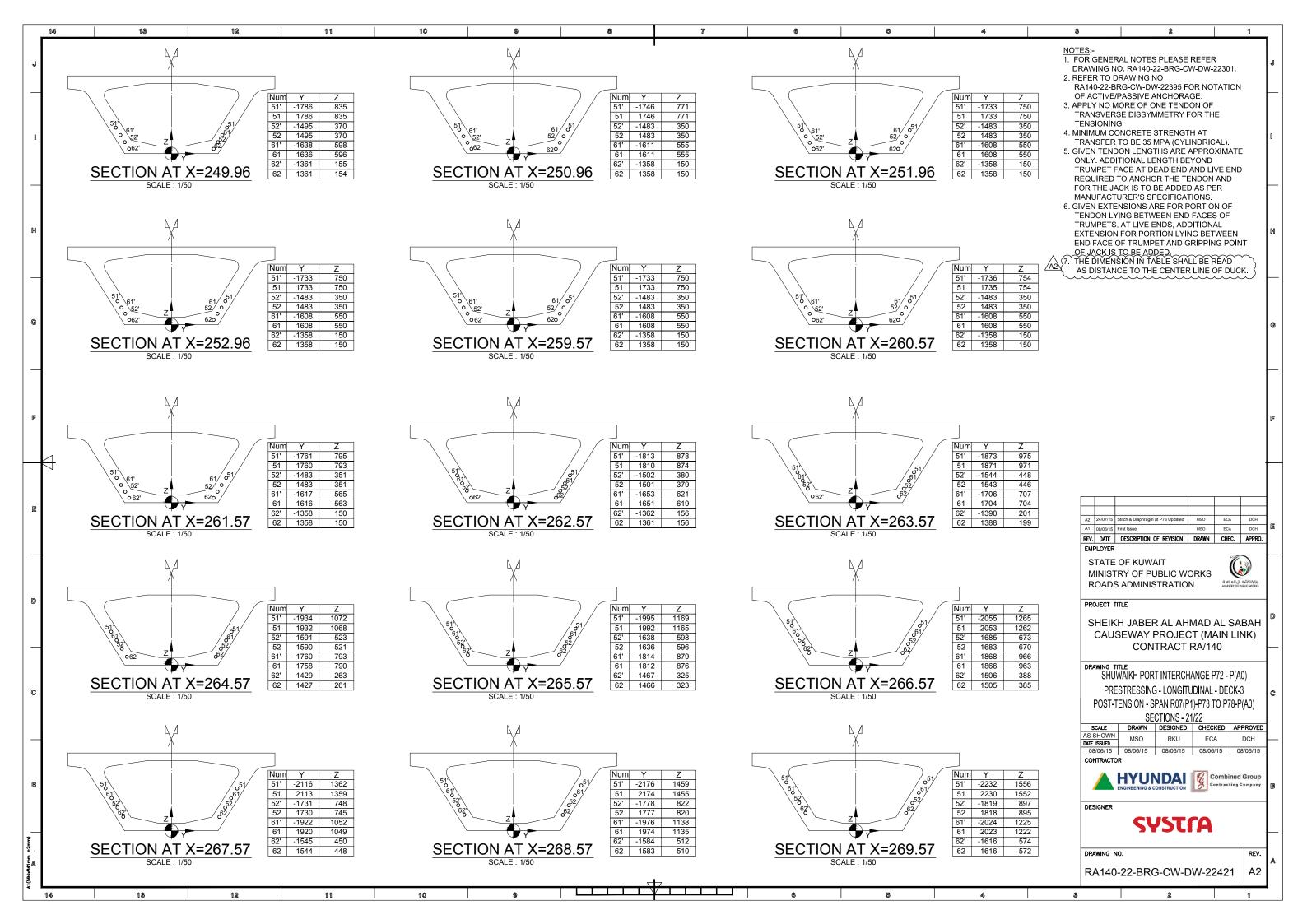


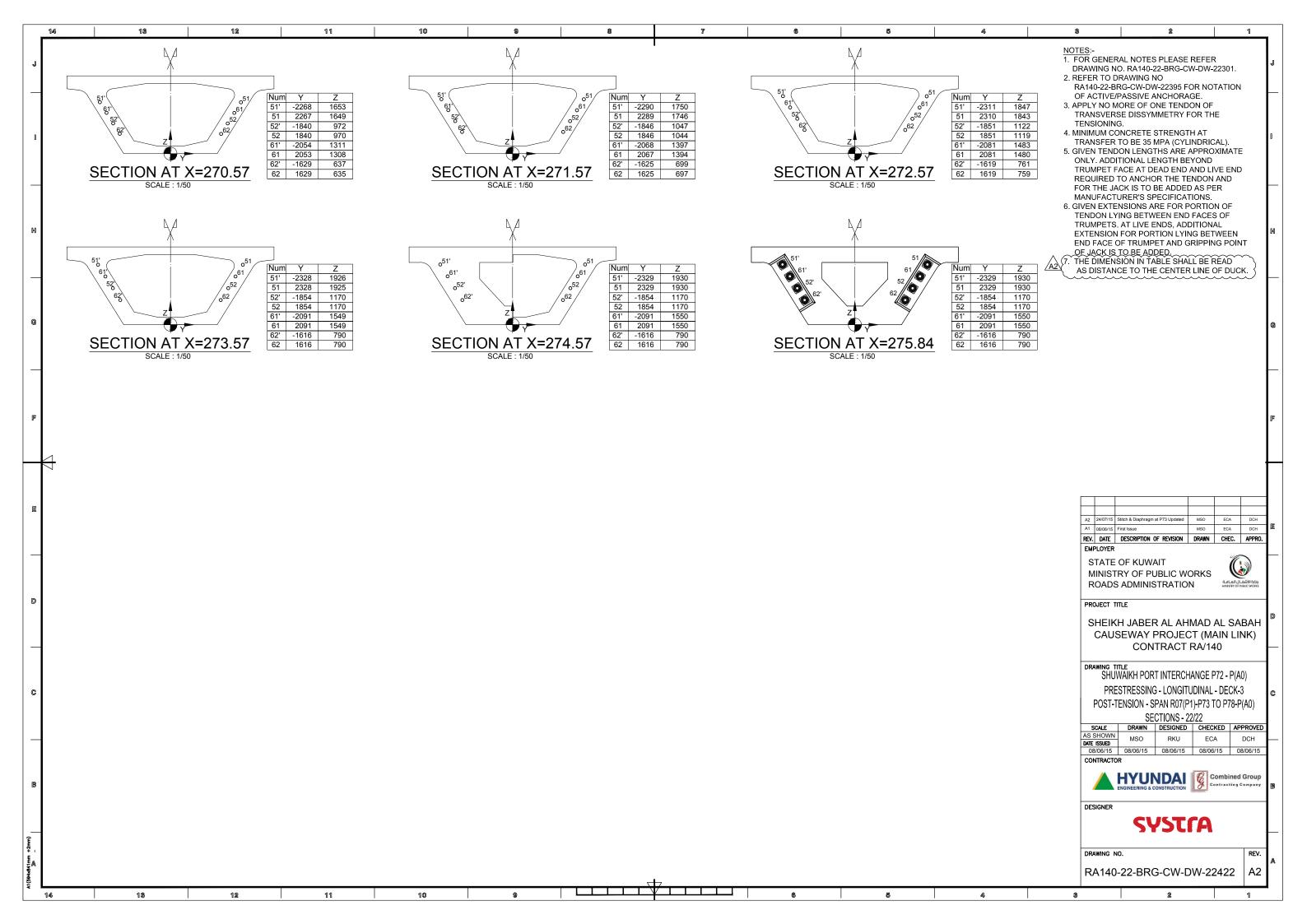


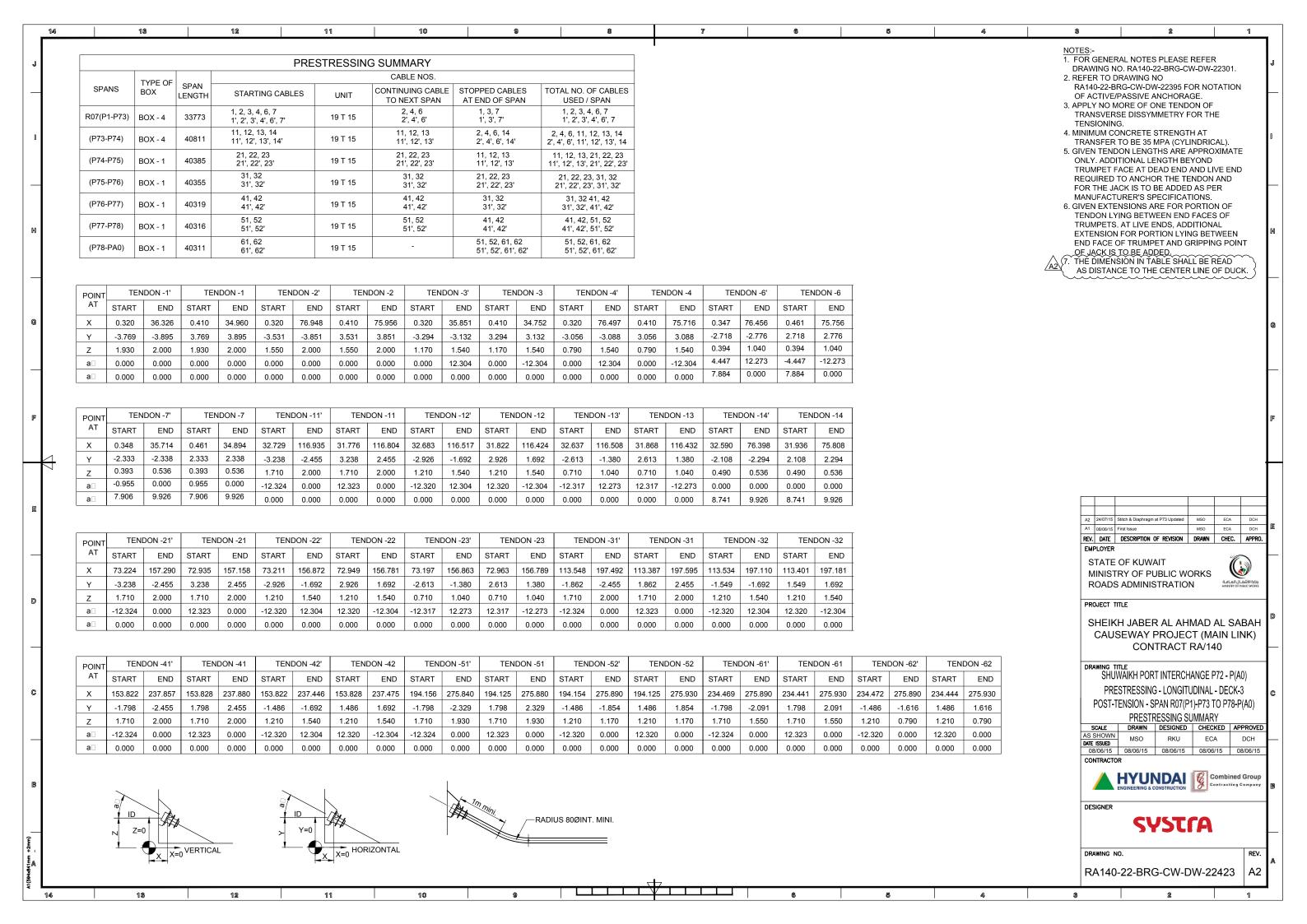












	13		12		11		10		9	8	7	6	5	43	<b>3</b> N∩TI		2	
		D	ECK 3 Er	nlargeme	ent Girder	(P72-PA	.0)								DF	OR GENERAL NO	OTES PLEASE F 140-22-BRG-CW	
Operation	Tendon No.	Tensioning order	Tendon unit	Anchorage unit	Anchorage co er (at oth ends)	Length (m)	Tension (⊡N)	Acti⊡e Ends	Eongation (m)						R. N	\140-22-BRG-C\ OTATION OF AC	ING NO W-DW-22395 FC CTIVE/PASSIVE	
	1	- 2	19T15	19T15	SEALING	36.189	3958	P73	0.244						3. AF		OF ONE TENDO	
	3		19T15 19T15	19T15 19T15	SEALING SEALING	34.532 35.699	3958 3958	P73	0.233 0.242						TI	ENSIONING.	ETE STRENGTH	
STAGE <sup>2</sup>	1 3'	3	19T15	19T15	SEALING	34.340	3958	P73	0.233						TI		E 35 MPA (CYLII	
	7	1	19T15	19T15	SEALING	35.457	3958	P73	0.236						A	PPROXIMATE O	ONLY. ADDITION ET FACE AT DE	
	7'		19T15 19T15	19T15 19T15	SEALING SEALING	34.385 77.223	3958 3958	P73	0.229						A	ND LIVE END RE	EQUIRED TO AN OR THE JACK IS	NCHC
	2'	2	19T15	19T15	SEALING	75.304	3958	P74	0.494						A		MANUFACTURE	
	4	3	19T15	19T15	SEALING	76.714	3958	P74	0.503						6. GI	VEN EXTENSIO	NS ARE FOR POBETWEEN END I	
STAGE 2	2 4'		19T15 19T15	19T15 19T15	SEALING SEALING	75.119 76.608	3958 3958	P74 P74	0.496 0.495						TI	RUMPETS. AT L	IVE ENDS, ADD PORTION LYIN	OITIC
	6'	1	19T15	19T15	SEALING	75.122	3958	P74	0.488						ВІ	ETWEEN END F	ACE OF TRUMP OF JACK IS TO	PET A
	14	- 4	19T15	19T15	SEALING	44.089	3958	P74	0.299						3			/
	14'		19T15 19T15	19T15 19T15	SEALING SEALING	43.666 84.869	3958 3958	P74 P75	0.297									
	11'	2	19T15	19T15	SEALING	84.957	3958	P75	0.549									
STAGE 3	3 12	- 3	19T15	19T15	SEALING	84.490	3958	P75	0.547									
	12'		19T15 19T15	19T15 19T15	SEALING SEALING	84.576 84.453	3958 3958	P75 P75	0.552 0.536									
	13'	1	19T15	19T15	SEALING	84.522	3958	P75	0.541									
	21	2	19T15	19T15	SEALING	84.684	3958	P76	0.548									
	21'		19T15 19T15	19T15 19T15	SEALING SEALING	84.200 84.256	3958 3958	P76 P76	0.544 0.550									
STAGE 4	4 22'	3	19T15	19T15	SEALING	83.861	3958	P76	0.548									
	23	1	19T15	19T15	SEALING	84.184	3958	P76	0.539									
	23'		19T15 19T15	19T15 19T15	SEALING SEALING	83.840 84.198	3958 3958	P76	0.537 0.543									
STAGE 5	31'	2	19T15	19T15	SEALING	84.538	3958	P77	0.547									
OTAGE	32	1	19T15	19T15	SEALING	83.850	3958	P77	0.547									-
	32' 41		19T15 19T15	19T15 19T15	SEALING SEALING	84.106 84.280	3958 3958	P77 P78	0.549 0.544						A1	08/06/15 First Issue	MSO	) 1
STAGE 6	41'	2	19T15	19T15	SEALING	84.396	3958	P78	0.546							DATE DESCRIPTION PLOYER	OF REVISION DRAW	N C
OINGE	42	1	19T15	19T15	SEALING	83.886	3958	P78	0.548						s	TATE OF KUW		
	42' 51		19T15 19T15	19T15 19T15	SEALING SEALING	83.991 81.893	3958 3958	P78	0.547 0.536						<b>I</b>	INISTRY OF P OADS ADMINI	PUBLIC WORKS ISTRATION	S ;
	51'	2	19T15	19T15	SEALING	82.165	3958	P77	0.537						PRO	NECT TITLE		
	52 52'	1	19T15 19T15	19T15 19T15	SEALING SEALING	81.854 82.095	3958 3958	P77	0.537						s	HEIKH JABE	R AL AHMAI	D AL
STAGE 7	7 61	_	19T15	19T15	SEALING	41.496	3958	P78	0.537								PROJECT (N	
	61'	4	19T15	19T15	SEALING	41.634	3958	P78	0.283								NTRACT RA/	140
	62 62'	3	19T15 19T15	19T15 19T15	SEALING SEALING	38.658	3958 3958	P78 P78	0.260 0.261						DRA	WING TITLE SHUWAIKH POI	RT INTERCHANGI	E P72
															S AS S DATE	PRESTITENSION - SPRESTING A PRESTING A PREST	IG - LONGITUDIN/ SPAN R07(P1)-P7: RESSING SEQUE DESIGNED CH RKU E 08/06/15 08/  NDAI VSTCC	73 TO FENCE HECKED ECA B/06/15 Combined
															DRA	WING NO.		
															R	140-22-BR	G-CW-DW-	224
	13		12		11		10		9		<del>7                                    </del>	6	5	4			2	$\top$

